The Automobile

WEEKLY NEW YORK—SATURDAY, JANUARY 9, 1904—CHICAGO 10 CENTS

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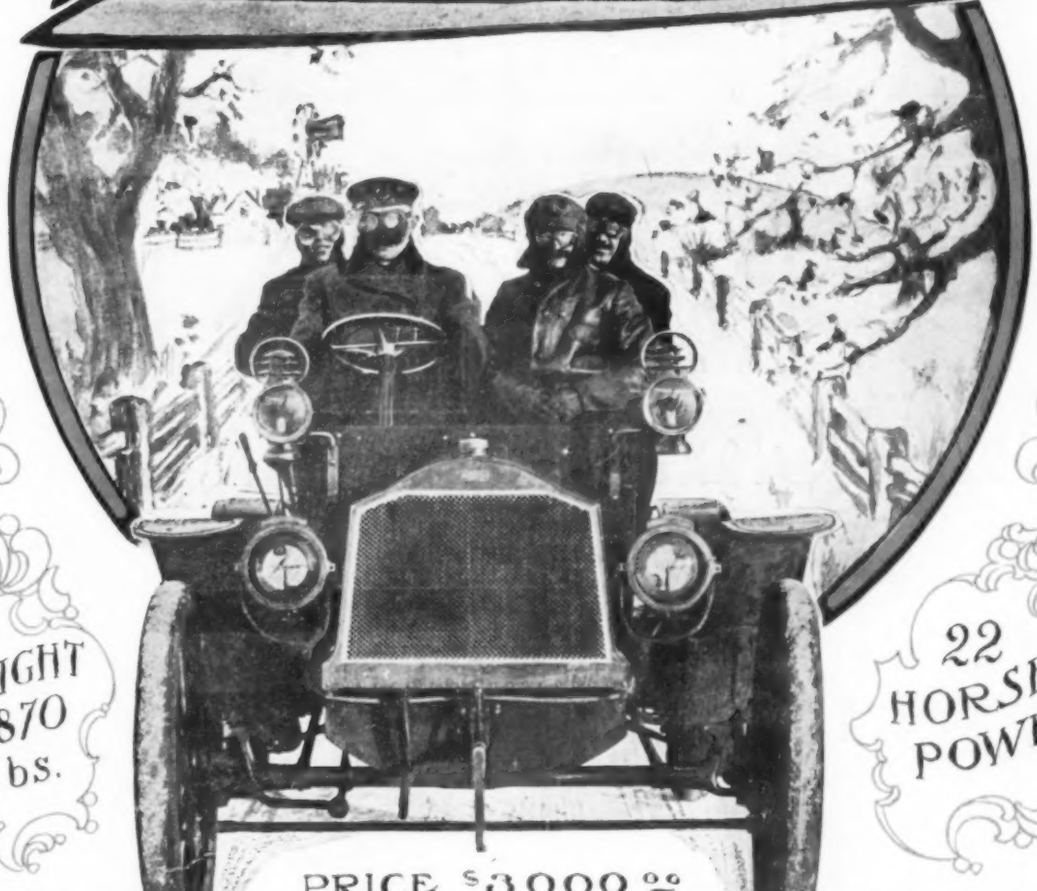

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22 HORSE POWER

PRICE $3000 00

PACKARD MOTOR CAR COMPANY

DEPT. 2. DETROIT, MICH., U.S.A.

MEMBER OF THE ASSOCIATION OF LICENSED AUTOMOBILE MANUFACTURERS.

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TIRES

THE TEST OF TIME simply emphasizes their superiority. The harder the tests the more the worth of G & J TIRES is made apparent.

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G & J TIRES COMBINE SPEED WITH COMFORT, AND SAFETY WITH BOTH.

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New Haven, Conn., C. H. Torrey, 751 Chapel St.
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NEW YORK SHOW SPACES, 61-62-63 Madison Square Garden

KNOX AUTOMOBILE CO., Springfield, Mass.

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WATERLESS GASOLINE CARS
are the diamonds of the automobile world. They are known value and the most valuable known. They are brilliant as diamonds in service and always at par, easy to operate, and wear like diamonds. Examine the Knox patent air-cooling system. The only *high power* engine cooled by air. The ideal winter machine. You can save repairs by using the Knox. They have every tested modern improvement.
TONNEAUS, SURREYS, and RUNABOUTS
Six Styles Passenger Cars and Six Styles Commercial Cars to Choose From
Send for Catalogue
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THE AUTOMOBILE

WEEKLY — NEW YORK — SATURDAY, JANUARY 9, 1904 — CHICAGO — 10 CENTS

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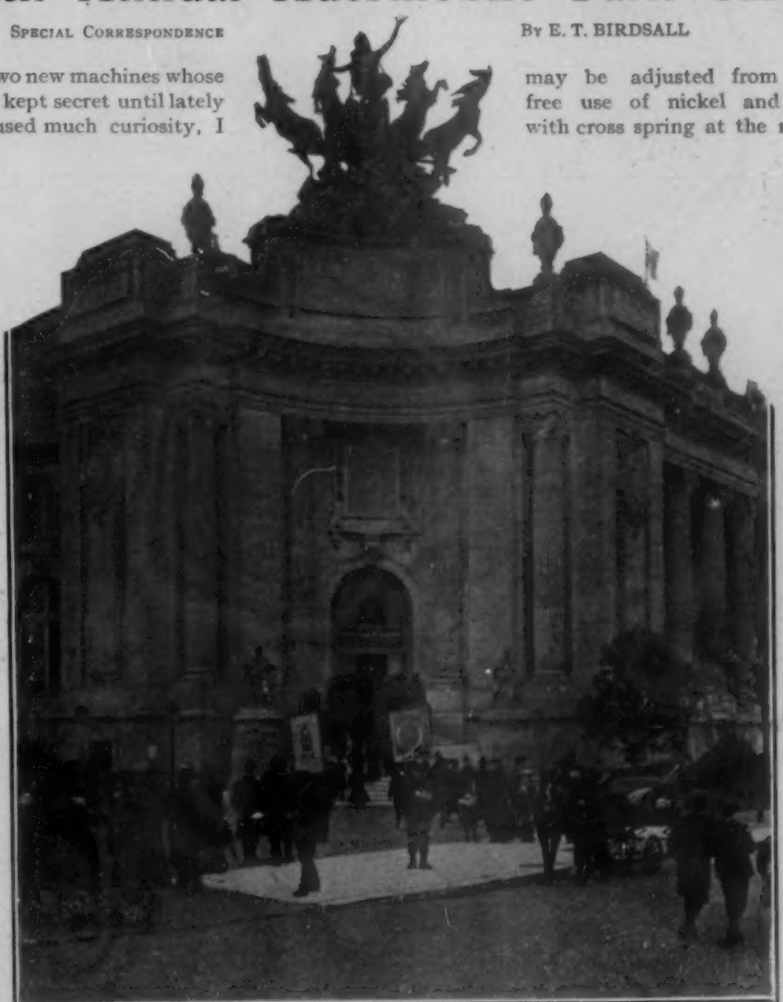
Sixth Annual Automobile Paris Salon.

SPECIAL CORRESPONDENCE — BY E. T. BIRDSALL

BEGINNING with the two new machines whose construction has been kept secret until lately and which have aroused much curiosity, I give in the following a description of the more important exhibits at the Paris Salon of 1903 and a general review of its most interesting features:

Hotchkiss. — This machine is made by the large gun-making firm of that name, and as it was widely advertised in advance that it would be something to make even Paris marvel, and that Henri Fournier and his brother, Achille, had secured the sole selling agency, its debut was awaited with impatience. On the stand is shown a finely finished exhibition chassis and several machines with bodies. The most striking feature is the shape of the bonnet which is cylindrical with ribbed ventilators which gives it the appearance of a barrel. The mechanism shows strong Mercedes influence. The front wheel pivots, engine, brakes, change gear box and many small features are like the 1901 type of Mercedes. The novelty that is most prominent is the use of balls in every bearing including those of the crankshaft. In this latter case, the ball races are in halves united with long screws after the manner of eccentric straps. The gear box with its two pairs of shifting gears, and the method of locking is like the Mercedes except that the gear change handle moves in a single slot in the quadrant. The general frame is of stamped steel. There being no subframe the engine case and gear box have arms extending to the sides. The cardan has two universal joints with squared slipping port. The drive is direct on the fourth speed. The rear axle is live with bevel gear drive and wheels supported on the ends of the fixed tubes as in Decauville and De Dion cars.



CHAMPS ELYSEES ENTRANCE TO THE GRAND PALAIS.

Other details are: honey-comb radiator with triangular tubes; all valves mechanically operated from two cam shafts; the angle of the blades of the radiator fan may be adjusted from the seat while running; free use of nickel and chrome steels; suspension with cross spring at the rear; five bearings to crank shaft; magneto ignition; carbureter not automatic; starting handle with device preventing "back kicks"; four speeds and reverse; control levers for throttle and spark are on top of steering wheel. The chassis has the finish so long associated with fine machine guns and excites much curiosity.

Bollee.—Léon Bollée claims to have been in the automobile business since 1873, when Ernest Sylvain Bollée, who founded the Bollée factories at Le Mans, built a steam machine of large size. He is also well known as the designer and constructor of the Bollée voiturette of three years ago, and many other machines.

The new Bollée, like the Hotchkiss, gives one the impression that it is an improved Mercedes of the 1901 type, as the engine gear box and many other parts show close adherence to the model.

The most striking feature of the chassis is the method of shifting the two pairs of sliding gears. It consists of two links disposed exactly like the Stephenson reversing links on American locomotives, except that in shape the links are dissimilar and are really cams. This provides for changing all speeds and the locking of one set of gears while the other pair are moving.

Another prominent feature is the carbureter which consists of one float chamber and several jets each with its own draught tube of proper size. These jets are un-

covered by a piston valve actuated by the governor. This carbureter, it is claimed, is the cause of the exceedingly quiet operation of the car, as the motor always gets a constant mixture and only enough for its requirements. Other features are: magnet and jump spark ignition; pressed steel frame; honeycomb radiator; very large water piping; automatic belt tension on fan; side chains to rear wheels; control levers on top of steering wheel; three pedals, one on clutch, one clutch and brake, one brake only; all valves mechanically operated from two cam shafts.

While much machinery has been crowded into a small space in this car, yet almost any organ can be removed without necessitating the removal of several others. In both of the above cars it is interesting to note the influence of the Mercedes and it will be still more interesting next year to note whether they will depart from this influence as far as the other makers have this year departed from last year's models.

Panhard.—On the Panhard stand is shown one chassis with steel cylinders and brass water-jackets, and a large touring car with cylinders of cast iron.

The change gear box and armored wood frame are unchanged. All engines are now made with separate cylinders in steel or cast iron, the former being lighter and considerably higher in price. The drive is by side chain on all machines. The small engines have automatic inlet valves, but the larger ones have mechanically operated valves worked from two cam shafts. The three-cylinder engine of 12-hp. having proved itself a success, is now a standard type in place of two-cylinder types formerly made. The crankshaft of this engine has balls in the end bearings. The ignition on all machines is jump spark from chain driven magneto and one coil through a distributer.

The radiator is of the now popular, combined tank and closely packed gilled tube type, which is supplanting the honeycomb form. A fan is of course used. The pump has been raised from below the frame to the crankshaft level and placed beside the engine. It is driven by the usual friction wheel through a flexible coupling. It will thus be seen that this firm maintains its conservative course, only changing design after long trial has shown the change to be a real improvement. The Krebs carbureter is used or all types.

Mors.—There are no changes visible in these cars except in very unimportant details. A very fine exhibition chassis is shown.

Charron, Girardot & Voigt.—This stand is a popular one with the public and shows three finely polished chassis placed over mirrors. They also show many parts in section, every moving or stationary part being cleanly cut through. There is also on exhibition the 8-cylinder, 100-hp. car which they built and which, it is announced on a placard, is the property of "M. Schwab, le Roi d'Acier." It is an imposing looking vehicle and one is tempted to think that two chauffeurs would not be too many.

They adhere to the frame made of square steel tubes filled with wood, but are casting the engine cylinders above fifteen horsepower singly instead of in pairs. Ball bearings are used on the ends of the crank shafts. The gear box is very large compared with others and has ball bearings to all journals. It gives four speeds and reverse with direct drive on the fourth. The "couple" gears are of the "herring bone" type. All valves are mechanically operated from two cam shafts. Control levers are on top of steering wheel. Drive is by side chains to rear wheels. The radiator is of the tank and gilled tube type, but is placed below the frame level and the fan covers but one-half of the tube area, the starting handle coming through the other side.

Mercedes.—Several machines are shown but all are 1903 models which are well known.

Gobron-Brillie.—This firm which has steadily made its way into prominence has perfected the double piston motor and the measuring carbureter. That is to say, each cylinder has two pistons moving in opposite directions with the combustion chamber between them, and the carbureter can be had of the form which delivers a fixed quantity of oil to each charge of air, or of a form which automatically keeps the mixture constant at all speeds of the motor. These carbureters use almost any light oil or alcohol. The motors are noted for their quiet running and absolute balance. The change gear box gives four speeds with direct drive on the fourth. Drive is by side chains to rear wheels. The frame is of stamped steel. Double cone clutch in flywheel. All valves are mechanically operated. Radiator of the tank and gilled tube type, with fan. Regulating handles on top of steering wheel. These vehicles show what can be accomplished by adhering to one type and perfecting it instead of each year grasping for novelties in the hope of making a "coup." Other conspicuous examples of this policy are Panhard and De Dion.

De Dion-Bouton.—This firm has four stands in different parts of the Palais showing respectively, pleasure vehicles, delivery wagons, etc., storage batteries, and motors for stationary purposes, boats, etc. The main floor stand shows the well-known Populaire and the two-cylinder type in well-finished tubular chassis. A striking exhibit on this stand is a 12-hp. and a 6-hp. engine, each cut through in a longitudinal vertical plane with all parts fixed in place, thus showing exact sections of the engines. Another novelty is the use of 8-hp. engines as posts for the railing

Original Hotchkiss Gun Factory, Built About 1800. Hotchkiss Shell and Ammunition Factory, Built a Few Years Later.

FIRST PLANTS AT SHARON, CONN., OF THE HOTCHKISS COMPANY, NOW BUILDING AUTOMOBILES IN FRANCE.

around the stand. The catalogues and literature distributed by this firm are many in number, marvels of beauty, and prodigal in quantity. The Marquis De Dion occasionally distributes roses to the ladies in the afternoon. The stands in the basement show the large storage batteries and motors for industrial purposes.

Darracq.—The Darracq stand shows a chassis having a frame of pressed steel of truly wonderful construction. It is claimed that the side members, cross pieces and extension forming the sub-frame are all in one piece. It certainly shows what can be done in this line. The main novelty of the chassis is the placing of all the valves on one side of the engine and operating all from one cam shaft.

In motors using high compression this is the favorite design. It is to be remembered that this old French company is now controlled by English capital.

Renault.—A fine exhibit of chassis and finished machines. The change gear is of the sliding type with direct drive on top speed with countershaft disengaged. The engine has now all valves operated from one cam shaft, otherwise there is very little change. The same form of radiator is used which encloses the engine and renders the carbureter and other ports very inaccessible.

GENERAL VIEW AND FAÇADE OF THE GRAND PALAIS.

Decauville.—On this stand are seven vehicles with different types of bodies and highly polished chassis of the standard 16-hp. machines. This shows the steel pan on which the entire mechanism is supported and protected from dirt. It has been found also that this construction does not raise as much dust as forms presenting a less smooth surface on the bottom. Other features of these cars are: all valves mechanically operated; valves from two cam shafts; bevel gear drive; direct drive on top speed; automatic carbureter; commutator on angle shaft; pressed steel frame, and jump spark ignition.

De Dietrich.—There have been several changes in these machines. The frame is of pressed steel, cylinders separated, all valves mechanically operated from one cam shaft, ignition by primary magneto, automatic carbureter, control levers on steering wheel and numerous other small changes.

Peugeot.—This firm shows cars with one, two and four cylinders. The small machines have tubular and armored wood frames, and bevel gear drive. The large machines have four cylinders, pressed steel frames, side chain drive, all valves mechanically operated by two cam shafts, double ignition, double foot brake on gear box shaft, spring checks and many other small changes.

Georges Richard.—A very fine exhibit, with several chassis of two and four cylindered cars. The main features are: a pressed steel frame with a tubular subframe; magneto primary ignition; automatic carbureter; all valves mechanically operated from two cam shafts; thermo-syphon circulation (no pump); bevel gear drive (except the 40-hp. car); automatic retarding of spark when starting, and many improved details.

Rochet Schneider.—The most striking change in these machines is in the shape of the cooler which is now made square. The pressed steel frame has been adopted together with: direct drive on top speed; control levers on top of steering wheel; side chain drive; three pedals; two brakes on sprocket shaft; all valves mechanically operated from two cam shafts; primary magneto ignition; change speed gears moved by flat cam, the shifting gears being in two pairs.

There is on the sizes below 24 hp., which are driven by bevel gears, a ratchet and pawl on the outside of the gear box brake which acts as a sprag when climbing hills.

Clement.—The cars which are now known as Bayards in France and Talbots in England are shown in one, two and four cylinder types. All cylinders are separate with valves mechanically operated from two cam shafts. Control levers on top of steering wheel, pressed steel frame on larger sizes, magneto ignition, honeycomb radiator, direct drive on top speed, three brakes.

The Only American Car.

The above concludes the description of the machines that are well known in America. The Oldsmobile was the only American machine in the Salon, and has a good position Several types of body are exhibited. Also a machine having glass panels to the body so that the working of the engine can be seen. The engine is driven by an electric motor and cut so as to show the working parts.

In addition to the machines already described, some of the more prominent stands are the following:

Belgica	Automotrice	Ducommun
Ader	Barré	Benz
Cottereau	Gardner-Serpollet	Germain
Buat	Corré	Hautier
Mildé	Berliet	Pipe
Chenard-Walcker	Delaugere	Boyer
Rochet	Chaboche	Fiat
Brouhot	Gladiator	Gillet Forrest
Henriod	Hérold	Argyll
Megy	Prunel	Tony Huber
Wolseley	Jeantaud	Lambert
Lethorre	Passy-Thellier	Selbach
Turgan Foy	Napier	Motobloc

Besides these there are many makers who use other makers' engines and parts, or only make a few cars per year.

The makers of motors, parts and accessories are well represented, in fact one entire day was spent in their departments in the gallery and basement alone. The number of freaks is encouragingly small, comprising a four-cylinder motor having no connecting rods or cranks; a car having a four-wheeled bogie truck in front all four of whose wheels are steered; a wheel made of flat semicircular springs; a few intricate change speed gears, impossible tires, etc.

General Review

Some idea of the size of the exhibition may be gathered from the fact that the total available floor space of the Grand Palais is over seven times as great as that of the Madison Square Garden. The fine architectural effect of the large but symmetrical building; its artistic stairways, halls, galleries and rooms; the profuse and expensive decorations and fittings make the Madison Square Garden seem very cheap and insignificant. The lighting of the great dome, the avenues outside and the exhibition stands make a sight seldom equalled for beauty. On the other hand, the chilly air and gravel floor could easily be improved upon.

The total number of exhibitors is 812. Of these, 69 are manufacturers of complete automobiles, including 5 English, 1 American, 3 German, 1 Italian, 1 Dutch, 5 Belgian and 2 Swiss.

There are 9 makers of electrics, 2 of mixed electric and gasoline, and 2 of steam (exclusive of steam tractors); 119 different types of cars are shown, and about 400 complete cars and chassis. The motors having four cylinders comprise nearly 60 per cent. of the total, and motors of 12 to 25 horsepower comprise about 55 per cent. of the total.

Vertical motors placed in front, are universal, with but three exceptions.

Over 65 per cent. of the motors have mechanically operated valves, and 95 per cent. of the motors govern on the throttle. Seventy per cent. use jump spark with accumulators, and 90 per cent. the leather covered cone clutch The slide gear is used by all except De Dion.

Side chains and bevel gear drive divide the show equally between them.

While the above figures give the percentages with reference to the exhibition, yet they do not indicate the relative extent to which any device is used by the prominent constructors, or the relative number of such devices sold per year. For example, the firm of De Dion-Bouton adhere to tubular frames, automatic inlet valves and jump spark ignition and probably turn out a greater number of these per year than all the others combined, yet the pressed steel frame, mechanically operated inlet valves and magneto ignition are by far the most popular with the big makers

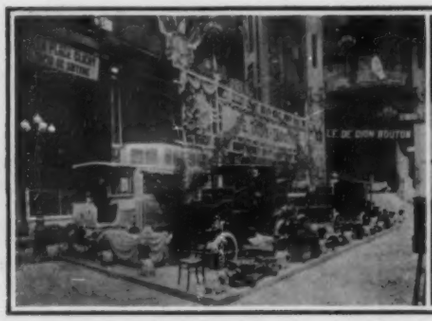
Accessories.

In the way of accessories very little of absolute novelty is shown. Sparking plug designers manifest a tendency to deepen the air space between the porcelain and the body, or the porcelain and the central rod, to prevent fouling. Spark gaps are formed in the porcelain or attached thereto. Some plugs have a double spark gap at the points in the cylinder. Others have none of the mica or porcelain exposed to heat in the cylinder, thus keeping the insulation cool and forming a very large gas chamber in the plug.

Several magnetos are shown which furnish a high tension current direct to the plugs without the usual coils, but the exhibitors were unanimously reticent as to the construction and made one wonder why the device was shown at all. A magnetic plug was seen on one of these stands, but quickly secreted when interest in its construction was shown.

Of the many primary current commutators exhibited the type using a roller held by a spring against the contacts placed around the interior of a circular box seems to be the most used. We saw one of these running in dirty oil and making about 300 contacts a minute without a miss. The commutators are now placed either on the dash or on a bevel gear driven shaft which extends to the top of the engine, thus bringing the device in a convenient and cleanly position.

The primary magneto ignition takes many forms, the common object being to make a quick break and allow for advance. Most of them are ingenious but very complicated and delicate in adjustment. The centrifugal pump, gear or friction drive, is universal. It is now placed higher than formerly, this being made possible by the abandonment of the water tank hung on the frame. The old type of stocked gilled tube radiator is now seldom seen. The new type in which gilled tubes are closely backed and surrounded by an annular tank is rapidly superseding the old type and the later popular honeycomb. It is cheaper to build, easier to repair, and equally as efficient as the other types.



DE DION HEAVY CARS.

DE DIETRICH MOTOR BOAT.

COLONEL RENARD AUTOMOBILE TRAIN.

RENAULT FRERES EXHIBIT.

The reservoir can be made of any reasonable capacity, complete circulation is assured and the pump can be placed higher up. A fan is, of course, necessary.

Great attention to the lubrication is shown on all cars. Forced feed by pumps or exhaust through pressure sight feed oilers being the favorite method. Hand pumps to cylinders, or to momentarily increase the flow to any bearing, are common. On one or two chassis power-driven rotary pumps operate a circulating oil system, thus assuring profuse lubrication. Oil pipes are now larger, neatly arranged and firmly supported at close intervals.

Automatic Carbureters.

The automatic carbureter is shown in many forms, each maker attacking the problem after his own ideas. Some are small and simple, while others are of great size and of intricate construction. Panhard still uses the Krebs in its original form. Hot water heating is used on the majority. The throttle is usually incorporated in the carbureter, but some makers claim that better results are obtained with a separate throttle valve placed close to each inlet valve.

Motor Construction.

The engines, of more than one cylinder, while differing in the details of design and equipment, show great similarity in many ways. The principal types are: (*A*) separate cylinders of steel or cast iron, and (*B*) cylinders cast in pairs. These may be still further divided into those having the valves placed (1) on opposite sides and (2) those having the valves on the same side of the cylinder. This latter class can again be divided into (*a*) those cylinders having the valves side by side, (*b*) those having the valves one above the other, and (*c*) those having one valve on the side and the other in the cylinder head.

The steel cylinder with brass water jacket is shown by three firms but they also show cast cylinders as their standard, only using the steel when extra light weight is required. The cost also is usually higher for the steel ones. Separate cast iron cylinders with the valves on opposite sides are generally used where the compression is comparatively low, and the valves are placed on the same side where high compression is used. This seems to be the accepted practice. Only one engine of prominence and reputation does not conform to the prevailing type, namely, the Gobron-Brillié which employs two pistons moving in opposite directions in each cylinder. This design has been so simplified and perfected that it is now rated as one of the best in France. All the medium size and large engines and many of the small ones use the mechanically operated inlet valve, working it either directly from one or two cam shafts or by means of tappets. The latter form seems to be growing in favor as it requires but one cam shaft, permits of a simpler cylinder casting and allows greater freedom in design. Many makers no longer enclose the camshaft and other gears in the engine case but use large gears of fiber and brass, designed to run without oil.

PROSPER LAMBERT EXHIBIT.

With the separate cylinders a longer case and crankshaft are necessary and it is usual to have a bearing between each cylinder. Ball bearings are being used on the end bearings of the crankshafts of two prominent makers and throughout on one new make. Whether they will give satisfaction in this especially trying position, nothing but a year's use will determine.

The leather covered cone clutch practically has the field. Other forms apparently being used only where novelty is

DECAUVILLE, PANHARD, DE DION, CLEMENT, GILLET-FOREST, AND PIPE (BELGIAN) DISPLAYS AT PARIS SALON.

desired or the fan type of flywheel renders its use impracticable. The clutch in many instances is connected to the gear box by means of universal joints which permit of the easy removal of the clutch without disturbing the engine or gas box. Large diameter and light weight are features of most of the clutch designs.

The speed of the engines is no longer a prominent item in the makers' specifications. By apparently unanimous consent the normal speed for purposes of calculation is about 1,000 r.p.m. but every engine is expected to be able to run considerably faster. However, owing to the flexibility of the modern engines the average working speed is probably about 850 r.p.m.

The controlling devices, such as pedals, levers, etc., are becoming standardized. The spark and throttle levers, or their equivalents, are now placed on top of the steering wheel, an extremely simple but valuable idea. One side lever gives all forward speeds and reverse. The rear wheels brake lever is no longer interconnected with the clutch. An additional pedal which operates a fourth brake independent of the clutch is provided on several cars. The type of pedal which is pushed forward seems to be superseding the older type, which is pushed down, the former being operated with less fatigue and enabling a better seat to be maintained at high speeds.

Very few brakes, except on the very large cars, are provided with water cooling. Internal expanding ring brakes with metal to metal surfaces are the present favorites, but all the makers seem to agree that the perfect brake has not yet been designed. All require too much adjustment, cleaning and repair.

Practically all the frames are now narrowed in front to permit of a smaller turning circle. Even one of the armored wood frames was so bent. This has been made necessary by the increased wheelbase now used with the side entrance bodies.

While two of the prominent makers of small cars still adhere to tubular frames and a few makers of large cars, including Panhard & Levassor, use the armored wood type exclusively, yet the majority of the makers have adopted the pressed steel frame as being an easy, neat and mechanically good solution of a difficult problem.

Slide Gears Universal.

In change gear mechanism the slide gear has practically crowded out all other forms. This is a striking example of the survival of a device which has been condemned as mechanically bad by practically all engineers, but has triumphed thro' the inability of inventors to produce anything that would give better results in actual practice.

The change gears may be divided roughly into three classes:—(*a*) those of Panhard type, having but one sliding member, (*b*) those of the Mercedes type having two sliding sets of gears, and (*c*), those having but one set of sliding gears but with a direct drive on the top speed.

This latter form is by far the most numerous and makes a compact and simple box. In this form the countershaft, and usually the reverse pinions, run idly when the top speed is in. This form, unless very carefully designed and constructed, has a very low mechanical efficiency on the lower speeds.

A seemingly incomprehensible difference in size of change gear boxes exists. With the same power, number of changes and size of car, the box of one machine is easily ten times the bulk of another, the average variation being about one to three.

Almost without exception, gears and gear teeth are larger than formerly.

Other forms of change gear are represented by one example of each of about six types, but none of which is used by a firm of any prominence.

Springs are generally slightly longer and the leaves much wider. Cross springs at the rear are only used on low powered and small machines. The side chain drive is generally used on cars having more than 20 hp., while the bevel gear driven live axle is more used on medium sized cars having less than 24 hp. Live rear axles with central chain drive are practically unknown.

Ball bearings of the double ring non-adjustable type are quite generally used in change gear boxes, live axle and bevel gear bearings. The regular double cone form being used on the sprocket bearings and wood wheels. No roller bearings could be discovered on any machine. A few well-known makers use plain bearings in whole or in part.

Carriage Styles.

The variations of form and style, and the novelties of construction of the carriage work seen on the streets and at the show, was a revelation to one accustomed to the uniformity of design seen in America.

The "Roi des Belges" tonneau so necessary to the complete satisfaction of the average American automobilist is seldom seen on the Paris streets and very few were exhibited at the show.

On the streets and boulevards, where several machines are always in sight and the sound of the horn and the odor of *essence* are more than frequent, an open car is a rare sight. Limousines, "cabs," and other forms of closed or semi-closed bodies outnumber the open types 25 to 1.

At the show the open types exhibited comprise the ordinary tonneau; the "Tulip" tonneau, which is the ordinary type with the tops of the seat backs flared out; and the double phaeton with revolving front bucket seat or side door to give entrance. The closed types comprise "cabs," limousines, landaus, coaches, etc. The semi-closed types use canopies with open or fixed backs, ordinary hoods and the "Cape cart" hood, which is a folding top similar to those occasionally used on surries in America.

The coming open type for next year will be the double phaeton with side entrance by revolving front seat (short chassis), or by side door (long chassis).

The corresponding closed and covered forms are the limousine with front or rear entrance (short chassis), the coupé with side door and canopy over front seat (long chassis), the double phaeton with fixed canopy with permanent back and entrance by revolving front seat or side door, and tonneaus or phaetons with the "Cape cart" hood.

The use of individual or bucket seats on small and medium sized cars seems to be on the decline, as they are warm in summer and uncomfortable unless large.

The Renard Train of Cars.

One of the novelties of the exhibition was the train of wagons designed for use in army operations. The train of five or more wagons are driven, not drawn, by a power vehicle resembling a tractor placed in front. From the tractor extends a universally jointed shaft carried by all the wagons and forming the couplings between them. From this shaft each wagon takes off its driving power, so that the tractor might actually be placed at the rear of, and be hauled by, the train. The tractor was not exhibited, as there was either some great secret to be hidden, or it was not finished, it was impossible to ascertain which. A number of trucks and delivery wagons were shown, but were mainly adaptations of the mechanisms used by the same firms on their pleasure vehicles.

The Decauville Co. exhibited a large and a small street car and a railroad inspection car, all driven by gasoline engines. A fire engine built to the order of the Paris fire department was given a prominent place. On one stand was a six cylinder engine with all six cylinders made in one casting. The value of this is not at once apparent; in fact, all the variations from the accepted standards were so far removed as to be obviously worthless.

Motor Boats.

In the marine section was a good display of launches, including some of the prize winners of last year. America was represented by a fine exhibit by the Lozier Motor Co. We have nothing, however, to learn from the French here as our boat work is far better than theirs.

Bicycles and Motor Bicycles.

The few exhibits of plain bicycles looked sadly out of place and it is hoped that next year they will be eliminated.

Judging by the number and size of the motor bicycle exhibits one would expect to see many of these handy vehicles on the streets. But, probably for the same reason that the limousine body is popular in Paris, the Frenchman hesitates to ride a motorcycle in the chilly winter weather.

The motorcycles make a fine show and exhibit every variety of form of engine and drive. Werner shows mechanically oper-

ated inlet valves and belt drive. Engines have from one to four cylinders. Many are water cooled with tank and radiators. Drives are by belts of various shapes, chains, spur gears, bevel gear shaft and friction. The air-cooled engine with flat belt drive is, however, in the majoriy.

DECORATIVE FEATURES.

One cannot close this account without some reference to the lavish decoration and splendid signs used on the various stands. Clement's sign is of wrought iron, of beautiful design and exquisite workmanship. Its real excellence is not evident, however, except upon close inspection. Panhard's, De Dion's and Lambert's are strikingly original and artistic. No exhibit is complete without at least one polished and plated chassis and, very often, elegant furniture

Such is the 1903 Salon, the greatest yet held from every standpoint.

Springfield Show in March in City Hall.

SPRINGFIELD, Mass., Jan. 9.—A committee of prominent members of the Automobile Club of Springfield, consisting of C. E. A. Cameron, chairman; A. A. Geisel, W. F. Anderson, J. E. Whitten, Dr. G. R. Finch and W. N. Stacey, is pushing for the local automobile show which the club decided at a recent meeting to hold from March 8 to 12, inclusive, in City Hall. This will afford nearly 7,000 square feet of floor space for exhibition purposes.

The show is not being promoted with the idea of making money, but for the purpose of interesting non-owners and affording opportunity for studying the various makes of cars. There will be a full representation of all the local made cars—the Knox, Stevens-Duryea, and Automotor—and also of all those having agencies in Springfield, including the Winton, Rambler, Cadillac, Orient, and Locomobile. Applications for space have been received from many manufacturers.

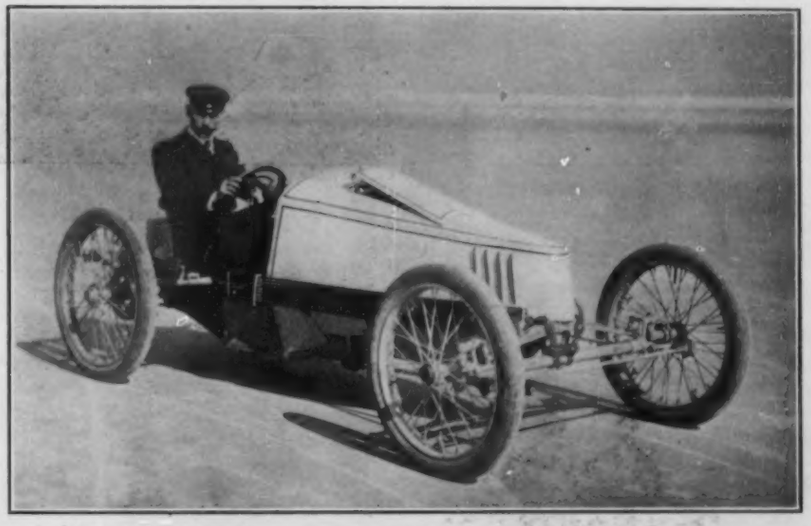
Straightaway Records Fall in Florida.

American Mile Figures Placed at 46 2-5 Seconds.—Kilometer and Five-Mile Times Broken.

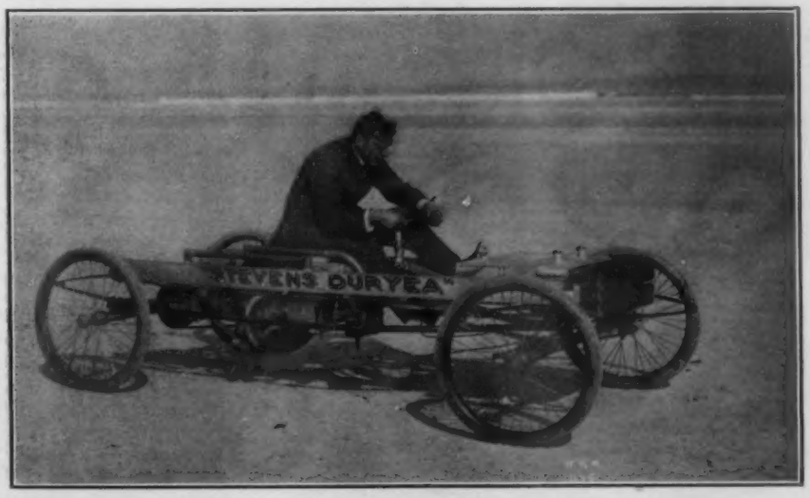
DAYTONA, Fla., Jan. 4.—New American straightaway records for the kilometer, the mile and for five miles in the 1,000-pound and 1,800-pound classes now stand to the credit of the Ormond-Daytona beach and the Stevens-Duryea and Packard Gray Wolf racers, driven respectively by Otto Nestman and Charles Schmidt, as a result of three days of record breaking trials that ended yesterday forenoon. The new records with which the slate for 1904 has been started are as follows:

One kilometer, 29 2-5 seconds; Charles Schmidt; Packard Gray Wolf, (25-hp., 1,400 lbs.) January 3, breaking American records for all weights and the world's record for the voiture legere class calling for weights not exceeding 1,430 pounds.

One mile, 46 2-5 seconds; Charles Schmidt; Packard Gray Wolf, January 3, breaking American records for all weights and world's record for the voiture legere class and coming within two-fifths of a second of the world's record of 46 flat, made by Augieres on a Mors of great power on the Dourdan course in November 17, 1902.



CHARLES SCHMIDT, IN GRAY WOLF, HOLDER OF NEW RECORDS.



OTTO NESTMAN, WHO BROKE RECORDS IN 1,000-POUND CLASS.

Five-mile, 4:21 3-5, Charles Schmidt, Packard Gray Wolf; January 2; breaking Alexander Winton's straightaway record of 4:46 1-5, made with the Winton Bullet No. 1, at Daytona last March and Barney Oldfield's track record of 4:40 1-5, made at Los Angeles last November in the Bullet No. 2, and breaking the world's record for the 1,430-pound class.

One kilometer, 35½ seconds; Otto Nestman, Stevens-Duryea; December 31; establishing American record for 1,000-pound class.

One mile, 57 1-5 seconds; Otto Nestman, Stevens-Duryea (14-hp., 900 lbs.); December 31; breaking the American record of 1:06 1-5 in the class for cars weighing 1,000 pounds and less, made by H. T. Thomas in the Oldsmobile Pirate at Ormond last March.

Five miles, 4:57 3-5; Otto Nestman, Stevens-Duryea; December 31, establishing an American record in the 1,000-pound class.

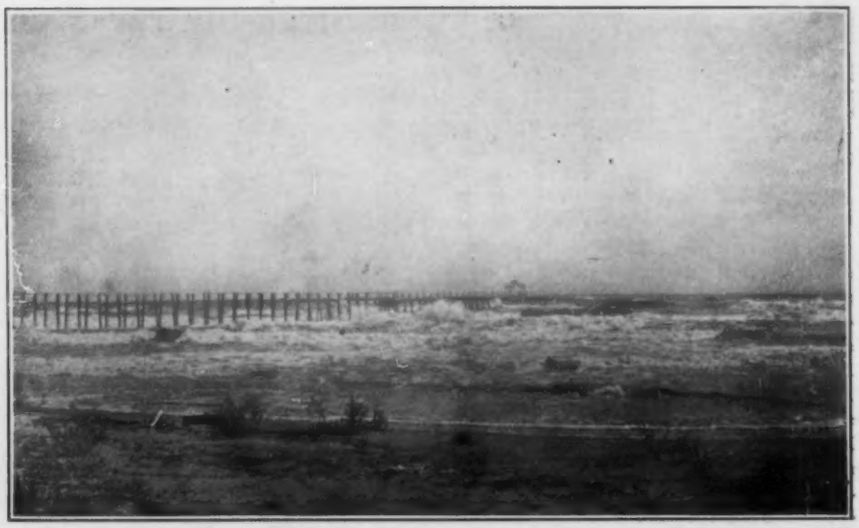
The trials on December 31 and on January 2 were timed by S. M. Butler, Secretary of the Automobile Club of America, and a corps of assistants using the Mors electric timing instruments of the A. A. A., and last Sunday's records were timed by three timers representing the Florida East Coast Automobile Asso-

ciation, who had been thoroughly drilled in the use of the Mors instruments by Mr. Butler before he left Saturday night for New York. The trials were all officially sanctioned by the American Automobile Association, so the records will stand. After the conclusion of the trials the timing machines were placed in a vault in the bank at Daytona and will not be taken out again until the tournament opens on the beach on January 27.

It was not generally known that any attempts at record breaking would be made at this time, but it was considered desirable to dissipate in this way any doubt that might exist as to the suitability of the Ormond-Daytona beach for the record-breaking tournament scheduled to immediately follow the closing of the New York show, and to prove that the shell beach is as fast this winter as it was last March when records were broken here by Alexander Winton, H. T. Thomas and Oscar Hedstrom. Sales Manager S. D. Waldron, of the Packard Motor Car

C. G. BURGOYNE IN HIS COLUMBIA.

Company, was also pleased to seize this opportunity to show that the Gray Wolf, whose track performances last fall were so disastrous, was as fast as any racing machine of her weight ever built. C. C. Hildebrand, sales manager for the J. Stevens Arms and Tool Company, also wanted to go for records in the light-weight class with the Stevens-Duryea "Spider" and so it was finally arranged that a party would leave New York on December 26, accompanied by S. M. Butler, of the Automobile Club of America, who kindly consented to act as official timer, and the Board of Governors of the club, with their usual courtesy, extended the use of the Mors timing instruments. The Gray Wolf was shipped by express from Detroit, but the express company would take her only to Cincinnati, claiming the machine was too large for the car door, and it had to go the rest of the way by fast freight. This took two weeks or more to Ormond, where the machine landed three days after the arrival there of the New York party.



FLORIDA SHELL BEACH UNDER WATER AT HIGH TIDE.

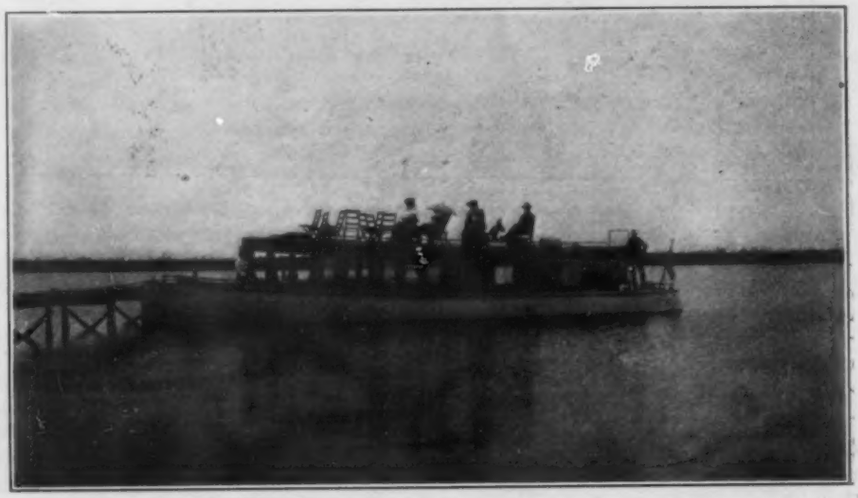
The party from New York, upon arriving, assembled at The Inn, which is picturesquely and pleasantly situated upon the sand dunes overlooking the beach, and Mr. Butler and the electricians soon had the fifteen miles of telephone and telegraph wire in readiness and the connections made for the measured mile.

The Stevens-Duryea racer arrived Wednesday, December 30, and Mr. Hildebrand and J. Frank Duryea had Otto Nestman bring her out. On the first trial the mile was covered, with flying start, in 58 3-5 seconds. Several more trials were made and the figures finally brought down to 57 1-5 seconds, which Nestman thought was the best that could be done with the gear he was using. He then went for the five-mile record, and on the second attempt established 4:57 3-5 as the American record. The machine was then immediately crated and shipped back to New York where it will be exhibited at the show.

The Gray Wolf was hurriedly got in shape for its first trial on New Year's Day by Charles Schmidt, and went the mile in 54 4-5, which was not at all satisfactory to Messrs. Waldon and Schmidt. The next day, after having been tuned up, eight separate trials were made for the mile, every one of them below the figures made the first day, and two of which were done in 50 2-5 seconds, breaking Winton's and Henri Fournier's records of 52 1-5 and 51 4-5, respectively.

Schmidt then went for the five-mile record, and his time was caught at 4:21 3-5 —world's record for cars of its weight and power.

J. T. Hathaway, a beach enthusiast, wanted the Packard people to try for a mile with a favorable breeze blowing, so on Sunday morning, January 3, a stiff "norther" having come up and the temperature dropped in twelve hours from 70 to 50 degrees, the machine was sent over the mile five different times, making the best time and breaking all American records, and all world's records for its class, on the first trial. The times for the consecu-



MOTOR BOAT "CHEROKEE" ON HALIFAX RIVER AT DAYTONA, FLA.

tive trials were as follows:—:46 2-5, :47, :46 4-5, :47, and :46 3-5. The best kilometer was caught at :29 2-5 and the next best at :29 3-5. The tide was out and the beach fairly dry. On the previous day the surface had been a little ripply, or "washboardy," as the residents call it, and the light car had bounded about considerably, the wheels appearing to be off the ground half the time.

The visitors were well entertained during their stay, W. H. Peters of Daytona, undertaking to act as host and leaving nothing undone to make them comfortable. He placed several fast motor boats and plenty of automobiles at the disposal of his friends. Residents and visitors at Ormond invited a number of Daytona motorists and members of the Florida East Coast Automobile Association to a dinner, and a motor boat brought a load of them to The Inn, where all had a good time and several addresses were made. Among the best hits of the night were those by C. G. Burgoyne, ex-mayor of Daytona, and probably the wealthiest automobilist in the State, who occupies a magnificent residence where he never tires of entertaining visitors. Mr. Burgoyne recently purchased a new four-cylinder Columbia, which, together with a Yale touring car, kept the visitors thoroughly engaged in seeing the sights when they were not breaking records.

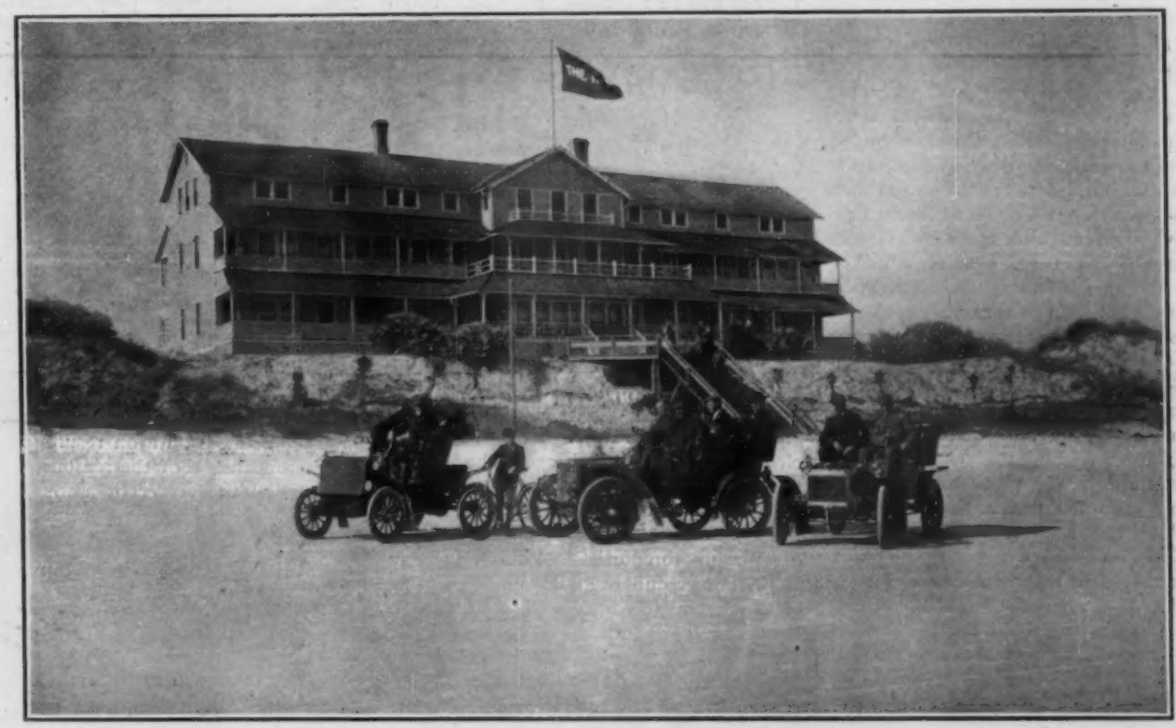
Gresham has instituted the collection of milk by automobiles. This is a good idea, for by the time the milk reaches the creamery it will be churned.—*Portland (Ore.) Oregonian.*

A Christmas Ride Through Dismal Swamp in a Runabout.

Bent upon being the first to cross the famous Dismal Swamp by automobile, and with the object of trying the fearful roads in the eastern section of North Carolina, I left Newport News by boat on the morning of the day before Christmas with a second-hand Oldsmobile that I had overhauled and knew was in good condition. We were landed at Portsmouth, across the Elizabeth River from Norfolk, Va., and the ride was begun there. Arriving at the small village of Deep Creek at 11 o'clock in the forenoon, my friend, J. A. Prichard, was taken aboard, and we started over a smooth shell road which lasted for six miles and ended where a very bad road began that required running on the low gear most of the way for twenty miles against a strong head wind. After running the twenty-six miles, we came to the State line between Virginia and North Carolina at a place called North West Church, where the sun dial pointed to 3 p.m., and, being hungry and thirsty, we stopped under a big oak tree to replenish the inner man.

At 3.30 we started again and after a run of ten and a half miles came to the edge of the great swamp at a place where no automobile had ever crossed before and where the last man crossed two years ago in a boat. We put on the high boots that we had brought, strapped our clothes to the top of the machine and strapped the top down to the top supports, then adjusted the clutch or band grip for low speed travel and took our seats. It was getting dark by this time, as it was nearly 5 o'clock and the sun had sunk behind a bank of clouds. Just ahead lay the gloom and loneliness of the swamp through which there is an old corduroy road that is considered one of the worst that man ever followed. Power was turned on and we descended a short down grade on the high gear, but the wheels soon began to sink and then went down through ten or twelve inches of water and mud to the buried tree trunks. In some places the drive wheels merely spun around as if suspended on jacks, and it became necessary to wrap the tires with ropes, after which this trouble was ended. When the power was again turned on, the machine went bumping over the corduroy road through the mire until it reached high ground on the other side with only the pale moon to furnish light. At times it was all we could do to stay in the seat. We reached Prichard's home at 7.20 p.m. and sat down to supper with many wondering how we had succeeded in crossing the swamp.

Christmas morning we examined the machine to see if anything was broken that could be repaired, and found one battery carbon broken and one body bolt sheared off. These having been replaced we set out for the village of South Mills, N. C., a six-mile run over heavy, miry clay



MOTORISTS LEAVING THE INN AT ORMOND FOR DRIVE ALONG THE BEACH TO DAYTONA.

roads and through ditches of water so deep that it covered the rim of the flywheel. But the machinery had been protected and we had no trouble from either mud or water. At 8.40 a.m. we rode up the main street of the town amid shouts of welcome. The natives of the little village gathered to see the "horseless carriage" and asked all manner of questions regarding it and how we got it there. When told that it had been run through the swamp they would not believe it, but we proved the assertion by several who had seen us, and great was the wonder thereat.

Rain began to fall and the steering lever was swung around for the return trip to my friend's house, where we ate Christmas dinner and stayed until 3.15. Then we started out again for a little place called Pearceville, N. C., where many of the inhabitants had turned out to greet us, the news of our coming having been telegraphed ahead. There were some good pieces of going on the road, and we swung along at a twenty-mile pace. Returning, we visited the Connor Farm, one of the finest farms in North Carolina, but had to strap down the top of the machine again while crossing the corduroy road leading to it. It was very rough, but there was no mud or water. We decided to remain all night at the farm. It began to turn very cold and as I had no anti-freezing solution I drew off all the water from the engine before sitting down to the supper that my relatives had prepared for us.

When the engine was started the next morning it was found that enough water had remained in the pipes to freeze the pump but not to burst it, so the engine was allowed to run until it thawed out the pump from its own hot water. The roads and the creeks in the ravines were frozen so hard that the wheels would not break through, but at times the machine would skid sideways and almost turn around. This difficulty was overcome by wrapping bale wire around the wheels and crossing the ice slowly. After we got over the creeks several miles were traveled on the high speed.

Sunday morning preparations were made for the return trip home. The tanks were filled for the second time since our arrival at Mr. Prichard's and by 1.30 p.m. all was in readiness for the start. By 3 o'clock we had recrossed the swamp, which was found to be frozen and very rough. Then we had forty-three miles to run to Portsmouth, which we made in 2 hours 40 minutes, slackening speed only for bridges and crossings.

The round trip of about 250 miles was made in four days' running, time being taken only to sleep and eat. The machine is in perfect order after having done what others have failed to do under better circumstances,—for we crossed the swamp in bad weather,—the cold being the only serious drawback to our comfort and enjoyment of the novel experience, as we fared very well otherwise. I am the first man to cross Dismal Swamp in an automobile, as I was the first to cross it on a bicycle. This trip has raised the automobile fever in that section to a high pitch and in time I think good roads will follow as a result. G. B. OVERTON.

Newport News, Dec. 31.

To Tour Europe in a New Knox.

BOSTON, Mass., Jan. 2.—E. J. Phelps, president of the Minneapolis Automobile Club, sailed from this city to-day on the White Star liner *Republic*. In the steamer with him was a new model Knox touring car with which Mr. Phelps intends to make a tour of the continent lasting from the time of his arrival until June. Mr. Phelps will leave the steamer at Marseilles, but the car will be unloaded at Genoa. From Marseilles, Mr. Phelps will journey by rail to Nice, where his wife and two children are now stopping. The whole family will then go to Genoa, board the automobile and tour southward through Italy. It is their intention to work northward with the coming of spring, going through Switzerland and southern France and landing at Paris in June. Mr. Phelps is an enthusiastic automobilist and will drive the car himself. He has been an automobilist for about four years, owning the second car that appeared in Minneapolis and the first of the touring variety.

Run of 121 Miles on One Charge.

A continuous run of 121 miles in an electric vehicle on one charge of the battery made in 10 hours 32 minutes, or at the rate of nearly 12 miles an hour, is reported to have been made over the asphalt streets of Washington on Christmas Day by H. C. Porter and Fred B. Whitney, clerk of the committee on Naval Affairs of the House of Representatives. Messrs. Porter and Whitney ran the vehicle and H. C. Cline, president of the National Capital Automobile Club, acted as referee. Mr. Porter left Waukegan, Ill., December 12 with an electric stanhope fitted with a Porter battery said to be of only about half the weight of the ordinary lead accumulator and to be made of an entirely new material, for the purpose of making a test run in the National Capital.

Uniform Federal Law for Germany.

The draft of a government law to regulate the operation of automobiles throughout the German Empire will probably be submitted to the next session of the Reichstag, as all the governments of the various German States have consented to such action in replies to communications sent by the Secretary of the Interior. The Federal Government has in this matter complied with the wishes of the automobile and bicycle associations, which have repeatedly petitioned that a uniform Federal law be substituted for the local regulations, which differ widely.

Correspondence

About Two-Cycle Engines.

Editor THE AUTOMOBILE:

I would like to know the horsepower of a four-cylinder, two-cycle automobile engine, cylinders 4 by 4 inches, running at 1,000 r.p.m.

2. What would be the power of a four-cycle automobile engine, cylinder 4 by 4 inches at 1,000 r.p.m.?

3. What would be the difference in consumption of gasoline between the two?

4. Does a two-cycle, four-cylinder engine, as described above, run satisfactorily up to 1,500 and 2,000 r.p.m. and does the horsepower increase proportionately, or would it miss fire?

5. Is the vibration of a two-cycle and four-cycle engine the same?

6. Does the two-cycle require a larger radiator? G. E. M.

Port Chester, N. Y., Dec. 19.

It is usually considered impracticable to make a two-cycle engine run at 1,000 r.p.m. under load. The transfer of the new charge from crank chamber to cylinder causes difficulties. The exhaust and the new charge get mixed at high piston speed, leading to loss of power. Hence several designers aim to introduce cold air first and the gasoline spray or vapor not till almost full compression is reached and immediately before ignition. We have no reliable data on results obtained by this means. For the reasons given we cannot tell the power of a four-cylinder two-cycle engine at 1,000 r.p.m. In existing types of two-cycle engines it is likely to be smaller than the power developed by the same engine at 600 r.p.m.

2. About 4 2-5 hp. per cylinder.

3. There is usually some loss of gasoline in the two-cycle motor, as explained above, but at low piston speeds this is partly compensated for in the higher temperature maintained in the two-cycle cylinder. The difference in consumption per hp. must largely depend on the particular design of the two-cycle engine.

4. Answered under 1. Premature ignition would be more to be feared than misfires.

5. Other things equal, the two-cycle engine has less vibration than four-cycle engine of same power and number of cylinders.

6. To avoid premature ignition and lubrication troubles, energetic cooling is advisable for two-cycle engines.

Chain Attachment for Wheels.

Editor THE AUTOMOBILE:

The accompanying photo shows a traction attachment that I have used for the past month, when required, with perfect success and satisfaction.

Two hoops for each rear wheel were formed of No. 5 steel wire, such as is used

by tinners for box and tank rims, and before the ends of the hoops were welded I strung a No. 2 German coil chain along them, slipping every eighth link alternately over one wire and the other, and passing the chain diagonally over the tire tread while thus lacing it on. A 30 by 3-inch tire requires twelve links on one hoop and thirteen on the other, two of these being the free ends of the chain. These are brought together and made fast with a lap of wire to make the attachment permanent. Sufficient slack is left in the chain to permit the links to shift somewhat and change the point of contact and wear on the tire with each revolution, while yet not bunching the chain in one place. The arrow in the photo shows the junction of the free ends of the chain as it appeared after about 100 miles of

SPECIAL CHAIN ATTACHMENT FOR TRACTION IN MUD OR SNOW.

driving. Since then one link has been cut out in taking up for lengthening of the chain.

The wire on the inner side of the wheel can be easily passed over the large diameter by a little force, forming an ellipse which can be brought to a circle again. At this time the chain is bunched under the wheel, but by turning the wheel with the chain bunch to the top, it can then be distributed to each side and the attachment completed by welding in five minutes. It can be removed in a minute. It gives perfect traction in deep wet snow or mud, and on ice. A few links of the chain broke at the weld, but a few open links made by the blacksmith of the same size and weight remedied that.

ALFRED C. SMITH, M. D.

Brownsville, Pa., Jan. 4, 1904.

Answers from Readers Will be Forwarded.

Editor THE AUTOMOBILE:

Kindly inform me if there is a good cyclometer which will fit on a 60-hp. Mercedes. My search for one has been unsuccessful so far. A. P.

Washington, D. C., Dec. 30.

Lard Oil as a Lubricant.

Editor THE AUTOMOBILE:

I noted with some astonishment that in your report, in the issue of December 29, of Parker H. Kemble's lectures on steam in the Boston course, lard oil was recommended as a suitable lubricant for the other parts of the machinery, after cylinder oil had been specified for its proper function.

As an old timer who has been through the mill since the days when tallow was the generally recognized lubricant, I wish to enter a most emphatic protest against the use of a material so utterly unfit for the purpose of general lubrication as lard oil.

Several years ago I was superintendent of one of Cincinnati's best machine shops, and shortly after taking charge I found one of the gear cutting machines acting rather badly. I had the machine taken apart and examined, with the result that I found it very badly gummed up.

Cleaning out with gasoline put the machine in good running order, but feeling that prevention was better than cure, I directed the operator to use only mineral engine oil in the future, and thereby avoided a recurrence of the trouble.

About the same time a Browne & Sharpe universal grinder began to act in a manner that indicated a badly gummed slide, so I gave the same orders in regard to it and permanently remedied the trouble there.

Then I hunted up the proprietor of the shop and had a talk with him. He told me he bought the best lard oil obtainable because he wanted the most satisfactory and serviceable oil and believed that the way to obtain it.

Next I asked him whether we had not found lard oil the best cutting oil to use on drills and lathe tools. He admitted this. "Do we want to cut our machinery?" I asked. "No," he answered.

"Didn't we find that lard oil made so much verdigris that it choked a small brass oil pipe on the 16-inch lathe." Again he had to admit this. "Now, Mr. Blank, do you, as an intelligent man, mean to tell me that an oil which gums two machines so that they will not run, produces so much verdigris that it chokes up brass pipes, and makes tools cut better, is a good lubricant?" "Well, I had never thought of it in that light; but you must admit that it is the greasiest of all the oils and has a good body, and therefore ought to be a good lubricant." Those two features, greasiness to the touch and good body have deceived a good many other people beside Mr. Blank; but they are a snare and a delusion, as the faults of lard oil vastly outweigh its good qualities.

Sperm oil is a good oil for sewing machines and very light mechanism. Castor oil is good for special uses. Both are expensive. A good mineral oil will not gum, nor will it corrode brass, and it is both cheap and efficient.

L. O. DANSE.

14 Spruce St., Detroit, Mich., Jan. 4.

Cellular and Sponge Rubber Tires.

Editor THE AUTOMOBILE:

I would like to have you discuss—1, cellular tires; 2, sponge rubber cored tires; 3, tires like the ———— with part sponge rubber core and part a small air tube.

J C. MONNET.

Cando, N. Dak., Dec. 24.

Rather than discussing a subject with which we are not sufficiently familiar, we would suggest that those interested in the manufacture and sale of tires of the description referred to, inform the public through these columns or our advertising pages—1, how long sponge rubber will preserve its resiliency under such usage as that to which vehicle tires are subjected; 2, to how many pounds of inflation in air tires the resiliency of a given mass of sponge rubber corresponds, and, 3, what methods have been found practical for manufacturing cellular tires in quantity at competitive cost of production. We admit that at present we are somewhat sceptical on these points.

Charles Glidden, of Boston, who made the "Farthest North" automobile tour in Norway last summer, is planning a tour of the world, and is now in correspondence with United States consuls and public officials in various countries to secure necessary preliminary information.

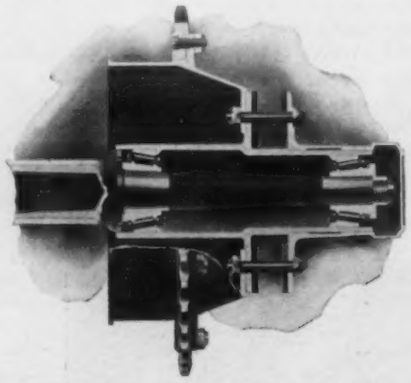
Firemen of Rosemont, a suburb of Philadelphia, have hit upon the plan of having a scout in a fast automobile precede the fire apparatus in answering alarms. In case of false alarms or when the fire has been put out, the scout turns around and meets the firemen, saving long, useless runs.

The Thomas 3-Cylinder Touring Car.

The E. R. Thomas Motor Company of Buffalo, has just finished its new model No. 22.

With the advent of this model the Thomas enters the field of high grade touring cars, the product being well designed and constructed and equipped with ample power for satisfactory road service. The new car is standard tread—weight under 2,000 pounds—with 84-inch wheel base, 32-inch artillery wood wheels, with 4-inch clincher tires, mounted by Timken roller bearings on steel tubing axles, rear 2 1-4 inch, front 2-inch, with special drop-forged steel yoke and curved to receive the engine base. The knuckles are drop-forged and fitted with hardened and ground steel bushings and 3-4 inch pins, seven inches long and set to give the wheels a dip of one degree.

The frame is made up of channel steel with riveted side plates, and is mounted on 40-inch front and 44-inch rear semi-elliptic springs with double toggle rear for chain adjustment, radius rods being mounted on the center line of the sprockets. The false frame for the support of the motor and transmission is suspended on the same level as the main frame by two cross bars. The King-of-the-Belgians body, with slightly arched seat backs, preserving the identity of the Thomas, has been selected. It is constructed of wood and metal with curved panels, detachable tonneau with disappearing seat on the tonneau door, fitting between the side seats when required and making a 50-inch seat, affording ample room for three persons. The dash is extended, forming a compartment for spark coils, oilers, switch and supplies, and from it the hood extends over the motor to a radiator of the Mercedes type. The hood is double-hinged and opens from each side to the center, completely exposing the motor and its accessories; or it can be entirely removed. Sight feed cylinder oilers are located on top of the dash, making the feed plainly visible to the operator.



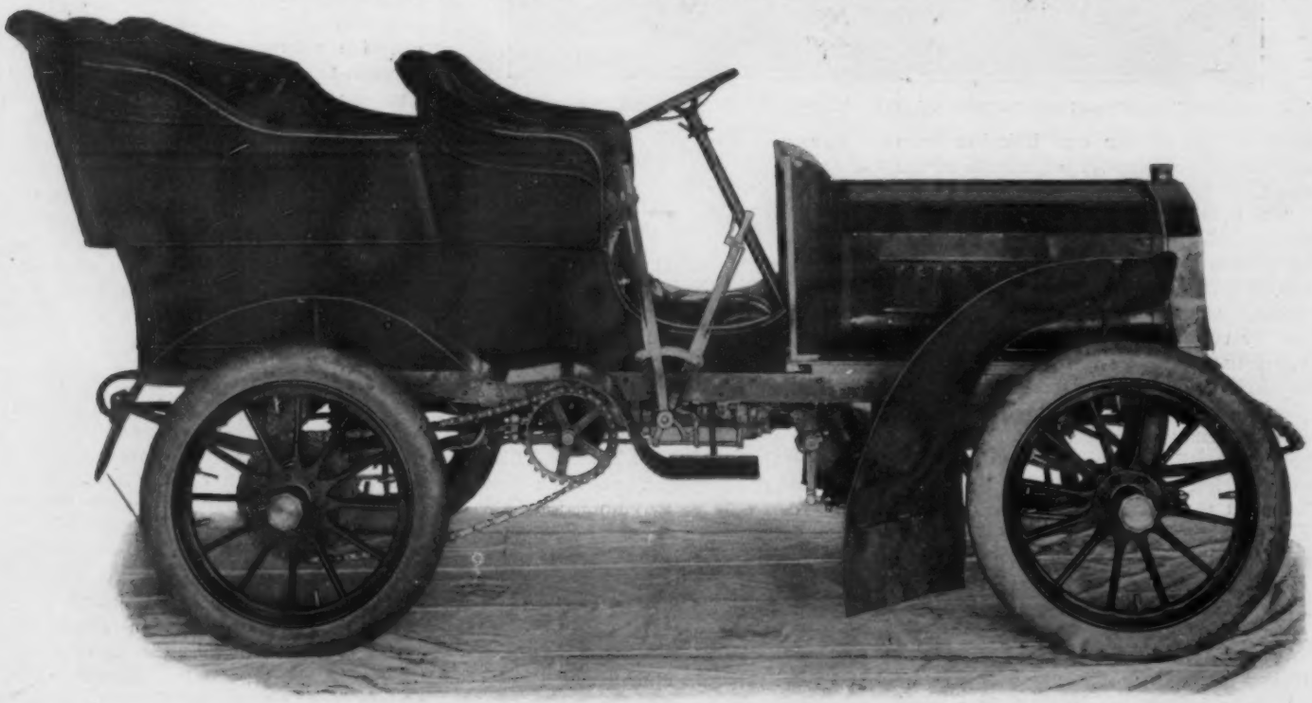
REAR HUB WITH TIMKEN BEARING.

The Motor.

The motor has three vertical cylinders cast separate 4 1-2 by 5 1-2 inches with cranks set at 120 degrees. At a normal speed of 900 revolutions the motor shows 24 horsepower on brake test. The crank is of drop-forged steel and has four main bearings, babbitted, the outer having chain oilers and the inner lubricated by splash. The flywheel weighs 112 pounds and is fitted to the shaft by taper and key, and is also bolted to a shaft flange. The cylinder, cylinder-head and valve chamber are cast in one piece, each with large water space, and all castings are tested by pneumatic pressure. The cylinders are bored to gauge 1-100 inch under size, and then ground to standard. The connecting rods are of steel, nine inches long, with babbitt bearings at the cylinder ends, and phosphor bronze at the wrist pins. Each piston has four rings at the upper end, and one at the lower to prevent oil from entering the combustion chamber. The valves are of drop forged steel, the intake being 1 7-8 inch diameter with 3-16 lift, the exhaust being 1 3-4 inch with 7-32 lift. The intake valves are located directly above the exhaust valves and are automatic. The exhaust valves are fitted with extra heavy closing springs. The spark plug is inserted in a recess in the valve or combustion chamber. All joints are ground, no gaskets being required in the connection to the carbureter. The motor base below the cylinder is cast of aluminum, forming a completely inclosed crank case for splash lubrication, with large removable side and bottom plates with ground joints, making all parts easily accessible. The total weight of the motor is 275 pounds.

The Cooling System.

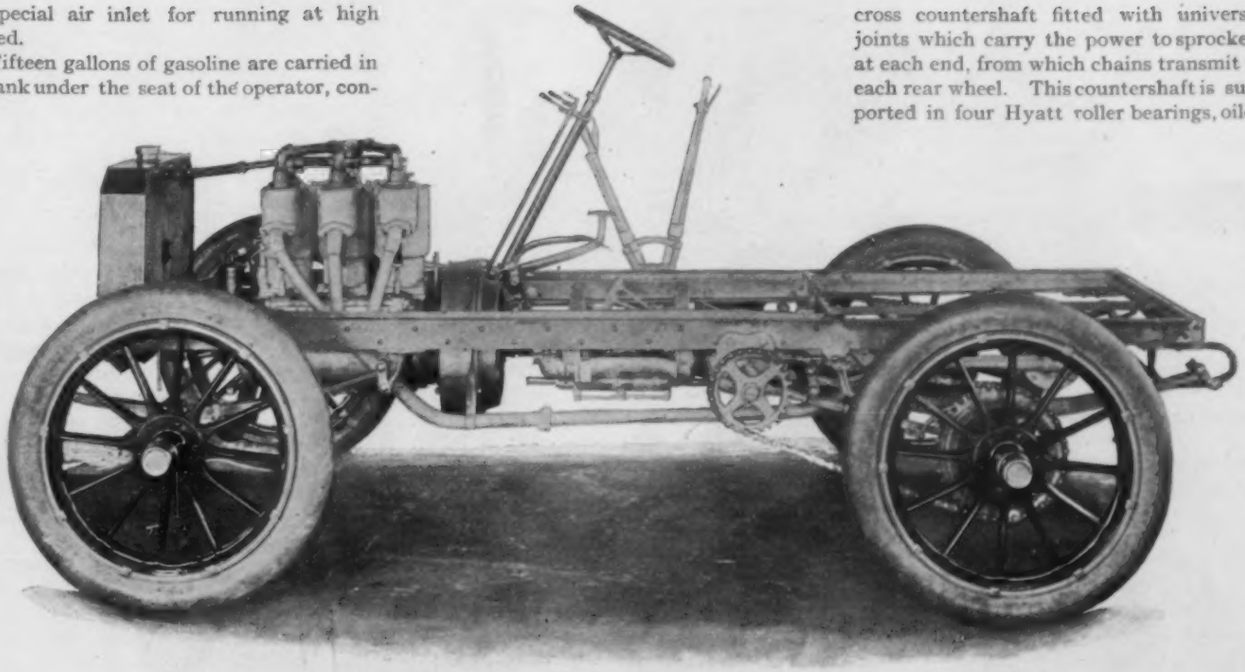
The radiator is of the Mercedes type, four feet of surface being allowed per horsepower, and circulation is maintained by a pump geared to the main shaft. Radiation is further assisted by an 18-inch fan driven at 2,000 revolutions per minute by gears from the main shaft. The carbureter is new, and improved by having



THOMAS THREE-CYLINDER TOURING CAR, MODEL 22.

a special air inlet for running at high speed.

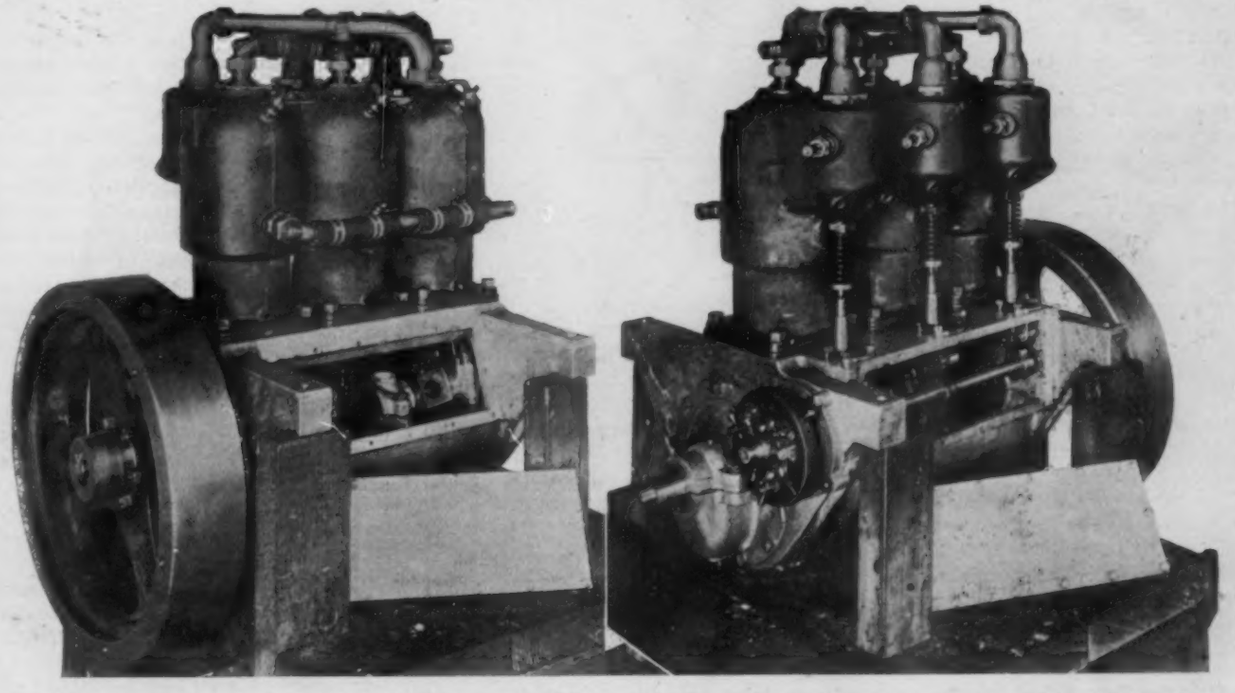
Fifteen gallons of gasoline are carried in a tank under the seat of the operator, connected to a small feed tank under the hood, both being on the same level, and the latter has visible supply tube attached.



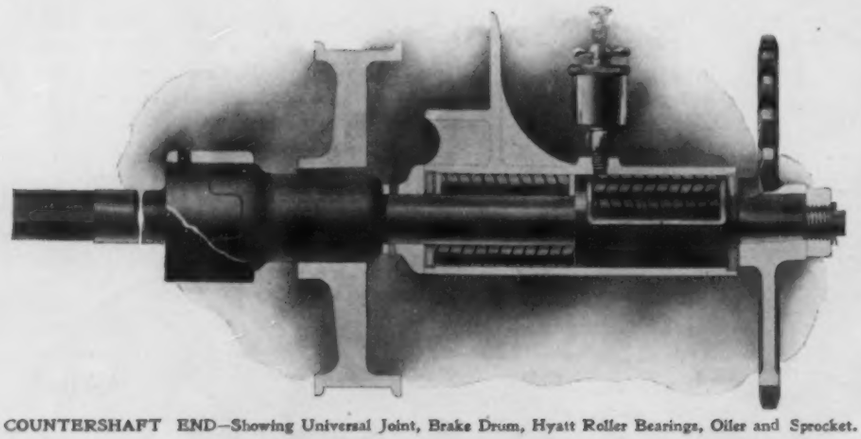
CHASSIS SHOWING RIVETED CHANNEL STEEL FRAME AND MECHANISM.

The Power Transmission.

Power is transmitted from the flywheel of the motor through a friction cone clutch operated by a foot pedal. The tension of the heavy clutch springs can be increased by adjustment if necessary to prevent slipping. The clutch is self-contained and transmits power through a universal joint and shaft to the sliding gear mechanism from which three forward and one reverse speeds are obtained, the high speed forming a direct connection, leaving the auxiliary shaft idle. The gears, cut from solid steel bars, are six pitch and wide face, case hardened and run in oil. The ratio of speeds are six, twelve and thirty with reverse four miles, the engine running at normal speed. A shaft with universal coupling transmits the power to a bevel gear and differential, this gear being of steel acting on phosphor bronze all encased and running in oil, and mounted on a cross countershaft fitted with universal joints which carry the power to sprockets at each end, from which chains transmit to each rear wheel. This countershaft is supported in four Hyatt roller bearings, oiled from cups, and carries two brake drums. The sprockets are of steel, milled to gauge, and Diamond detachable link roller chains are used. The rear sprocket is thirteen inches in diameter and has forty teeth, the smaller front sprocket having twenty-five. The rear sprockets are mounted on the driving wheels in a plane intersecting the hub between the roller bearings, thereby avoiding side strain on the bearings. Each rear wheel is provided with double-acting brake operated by hand lever through a compensating cable. The two

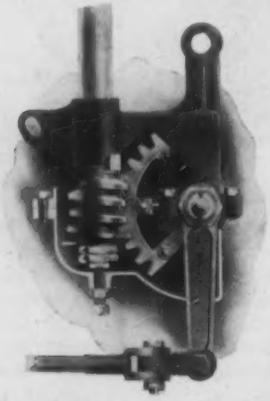


THOMAS THREE-CYLINDER MOTOR, FROM BOTH SIDES.—Showing Plugs Inserted in Combustion Chambers between Inlet and Exhaust Valves.

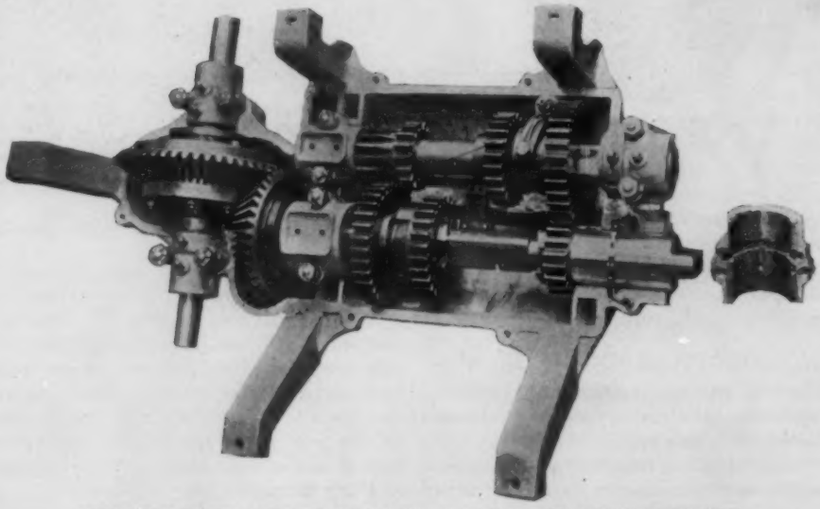


COUNTERSHAFT END—Showing Universal Joint, Brake Drum, Hyatt Roller Bearings, Oiler and Sprocket.

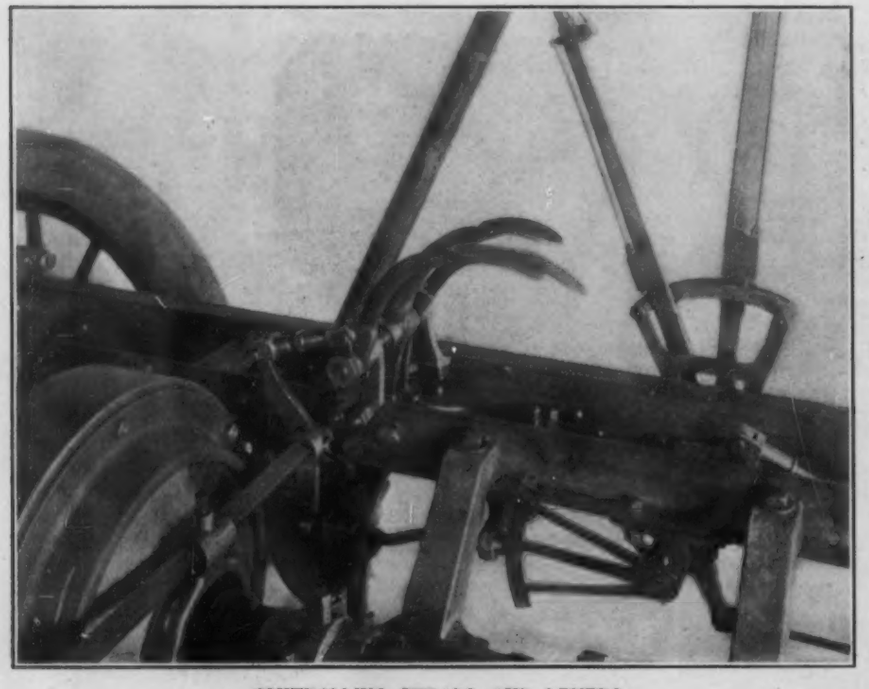
brakes on the countershaft are operated by foot pedal, all four being operated and the engine clutch thrown out by one movement of the brake lever.



STEERING GEAR WITH CONCAVED WORM.



CHANGE SPEED GEARS AND BEVEL DRIVE TO COUNTERSHAFT.



CONTROLLING PEDALS AND LEVERS.

Segment Interlock Prevents Clutch Engaging Until Gears are in Perfect Mesh. One Movement of Brake Lever Throws Out Clutch and Sets Four Brakes.

IGNITION, STEERING AND OPERATING.

Two sets of four dry batteries are used to form the primary circuit to a triple coil and sparking gap device with the usual make-and-break commutator, which is under the control of the operator for advancing or retarding the spark.

The steering wheel has a tilting device and operates through a worm gear of special design inclosed in a dustproof box. The worm is concaved so that all the threads of a 2 1-2-inch worm have a bearing. The impulse is carried to a knuckle on the right wheel, and from this by a front rod to the left.

In operation the left foot lever releases the clutch and the right also releases the motor and sets brakes on the countershaft.

The three forward and one reverse speeds are obtained by a single forward and backward movement of the speed lever which is provided with a notched segment. An interlocking device prevents the clutch connection until the speed lever is locked to the segment in proper position, insuring that the sliding gears are in proper position before power can be applied. The second lever controls the brakes on the rear wheels and on the countershaft, all four brakes being set by one movement of this lever. It is also provided with ratchet and notched segment to hold the brake at any desired point.

A special feature is a safety device to prevent the car from running backward. Inside the brake drum on the rear wheels an internal gear, or rather a series of notches is cut. A heavy pawl attached to the rear axle can be dropped into these notches by the operator, and, when this is done, a slight backward movement of the car securely locks the wheel to the axle.

Lubrication is simple and effective with splash system in the crank case, and the transmission bevel gear and differential running in an oil bath. The cylinders are lubricated by forced feed, actuated by the exhaust, and passing through the sight

tubes on the dash with a separate tube for each cylinder. The oiler is provided with a hot water heater for keeping the oil at a uniform temperature.

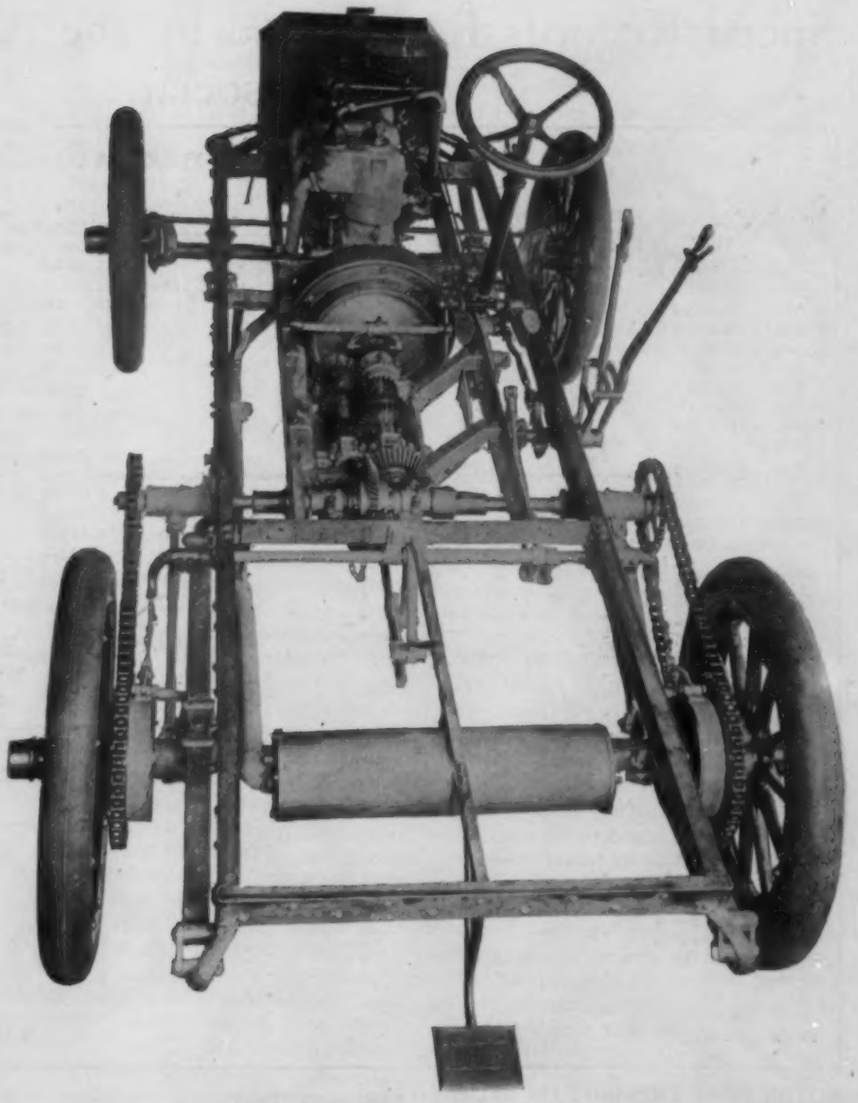
The Thomas cars will be made for 1904 with Limousine body, Pullman style body or with side entrance if desired.

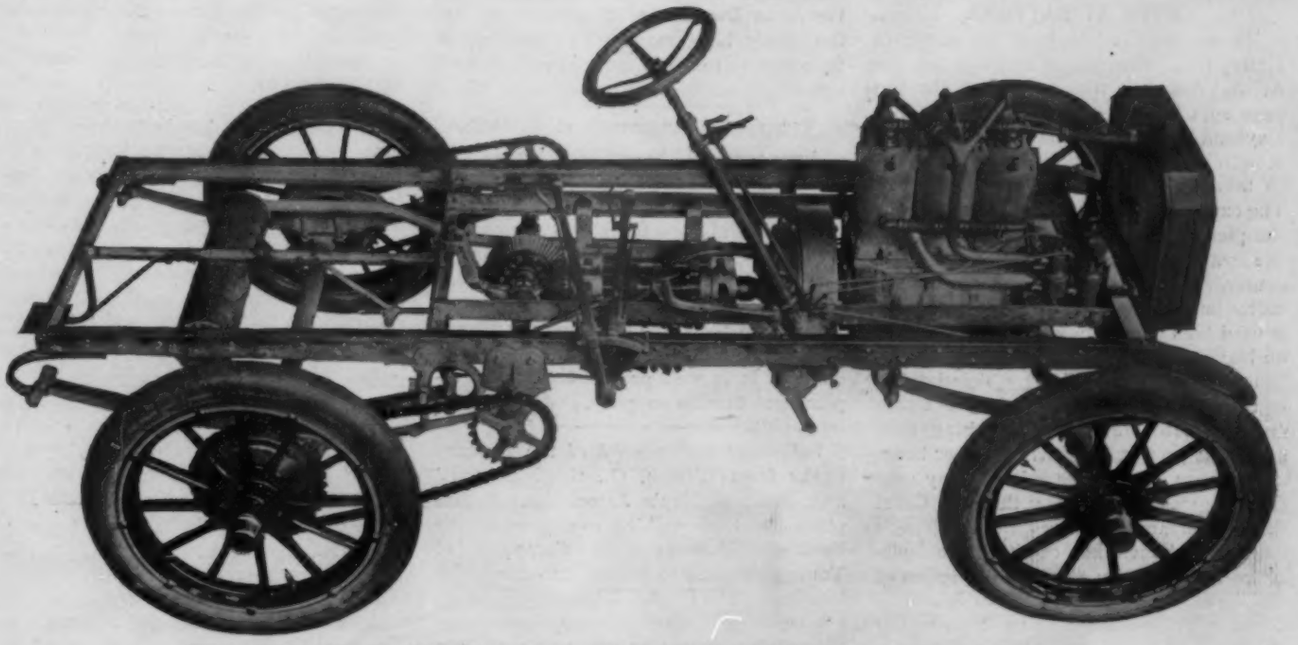
Tennessee's Only Garage.

The only garage in Tennessee was established early last summer by W. F. Anderson in Nashville on Summer Street, and during the first six months of its existence its business grew so rapidly that a month ago a stock company was organized to conduct the enterprise on a larger scale under the name of the Auto Company of Nashville. The officers and directors are as follows: President, Frank G. Fite; vice-president, Jordan Stokes; general manager, W. F. Anderson. Directors, T. M. Steger, J. W. Handley, W. F. Anderson, Jordan Stokes and Frank G. Fite.

Mr. Anderson was instructed to secure a suitable building for show rooms on a business street of the city, and a conference was held with Postmaster Willis relative to conveying mail from the depots to the postoffice in automobiles. The company also intends to buy two twenty-six passenger automobile 'buses, one of which will be kept for hire for special parties and the other will make regular trips between the hotels and stations. These will be supplemented by four or five touring cars to be kept for hire.

Forty-two automobiles are now owned in Nashville, whereas a year ago there were not more than half a dozen. The company's garage is a four-story building in which the two lower floors are used for storage purposes, and the two upper floors for repair work.





TWO VIEWS OF CHASSIS OF THOMAS CAR WITH TRANSMISSION GEAR COVER REMOVED.

Speed Records Recognized by the American Automobile Association.

TRACK RECORDS

GASOLINE.

Machines Over 1,800 Pounds.

Dis.	Time.	Made By.	Machine.	Place.	Date.
1 m.	0.55	Barney Oldfield	Winton	Los Angeles, Cal.	Nov. 20, 1903
2 m.	1.54 1-2	"	"	Denver, Col.	Oct. 19. 1903
3 m.	2.50 3-4	"	"	"	"
4 m.	3.47 3-4	"	"	"	"
5 m.	4.44	"	"	"	"
6 m.	5.42	"	"	"	"
7 m.	6.39 1-4	"	"	"	"
8 m.	7.37 1-4	"	"	"	"
9 m.	8.3 1-2	"	"	"	"
10 m.	9.32 1-2	"	"	"	"
11 m.	10.2 3-4	"	"	"	"
12 m.	11.27 3-4	"	"	"	"
13 m.	12.25 3-4	"	"	"	"
14 m.	13.23 3-4	"	"	"	"
15 m.	14.21	"	"	"	"
16 m.	20.24 4-5	Henri Fournier	Mors	Fort Erie, Can.	Sept. 26, 1901
17 m	21.40 4-5	"	"	"	"
18 m.	22.56 4-5	"	"	"	"
19 m.	24.12 2-5	"	"	"	"
20 m.	25.25 2-5	"	"	"	"
21 m.	26.42	"	"	"	"
22 m.	27.57	"	"	"	"
23 m.	29.12	"	"	"	"
24 m.	30.28 4-5	"	"	"	"
25m.	31.44 1-5	"	"	"	"
50 m.	1.17.50	Alex. Winton	Winton	Chicago	Sept. 18, 1900

Machines 1,200 to 1,800 Pounds.

Dis.	Time.	Made by	Machine	Place.	Date.
1 m.	0.59 4-5	Barney Oldfield	Winton	Cleveland, O.	Sept. 4, 1903
2 m.	1.59 4-5	"	"	"	"
3 m.	2.59	"	"	"	"
4 m.	3.58 4-5	"	"	"	"
5 m.	4.58 4-5	"	"	"	"
6 m.	5.58 4-5	"	"	"	"
7 m.	6.59	"	"	"	"
8 m.	7.59	"	"	"	"
9 m.	9.01 3-5	"	"	"	"
10 m.	10.06	"	"	"	"

Machines 1,200 to 1,800 Pounds.—Continued

Dis.	Time.	Made By.	Machine	Place.	Date.
11 m.	11.56	Jules Sincholle	Darracq	Detroit, Mich.	Sept. 9, 1903
12 m.	12.59 4-5	"	"	"	"
13 m.	14.00	"	"	"	"
14 m.	15.07 2-5	"	"	"	"
15 m.	*15.07 1-5	Henri Page	Decauville	New York	Oct. 3. 1903

Best mile for this class—59 1-5 sec., by Oldfield, the third mile in the above.

*Page's 15 mile time was only taken; Sincholle's times from 11 to 14 miles are therefore allowed to stand, although these are presumably slower than Page's.

Machines Under 1,200 Pounds.

1 m.	1.07 2-5	Dan Wurgis	Oldsmobile	Cleveland, O.	Sept. 4. 1903
2 m.	2.24 1-2	"	"	Syracuse, N. Y.	Sept. 12, 1903
3 m.	3.31 1-2	"	"	"	"
4 m.	4.40 1-4	"	"	"	"
5 m.	5.49	"	"	"	"

STEAM.

Dis.	Time.	Made By.	Machine.	Place.	Date.
1 m.	1.01	Geo. C. Cannon	Cannon	Providence, R.I.	Sept. 26, 1903
2 m.	2.24 3-5	"	"	"	"
5 m.	3.36 4-5	"	"	"	"
4 m.	4.48 2-5	"	"	"	"
5 m.	5.56 3-5	"	"	"	"
6 m.	7.22 2-5	J. L. Hedges	White	Cleveland. O.	Sept. 5, 1903
7 m.	8.39	"	"	"	"
8 m.	9.51	"	"	"	"
9 m.	11.05 1-5	"	"	"	"
10 m.	12.20 4-5	"	"	"	"

ELECTRIC.

Dis.	Time.	Made By.	Machine.	Place.	Date.
1 m.	1.21 4-5	D. Chisholm	Baker	Cleveland, O.	Sept. 4, 1903
2 m.	2.35 2-5	"	"	"	"
3 m.	3.53	"	"	"	"
4 m.	5.11 1-5	"	"	"	"
5 m.	6.29 3-5	"	"	"	"
10 m.	17.58	W. C. Baker	"	Detroit. Mich.	Oct. 24 1902

MOTOR BOAT CHEROKEE ON HALIFAX RIVER AT DAYTONA.

We are indebted to J. M. Dickinson of Holly Hill, Florida, a member of the A. A. A., for the two pictures on page 29, of which one shows the Ormond-Daytona beach, the scene of recent record-breaking speed trials and of the race meet to take place after the New York show. The explanation is perhaps necessary, that the picture was taken at flood tide, when the waves break freely over the race course. The other photo represents the motor launch *Cherokee*, which in the season is used for the accommodation of tourists, on Halifax River, at Daytona, and at other times is fitted for cruising. This boat is equipped with two 10-hp. White steam engines, automobile type, working twin screws, is 51 feet long, with 10 feet beam and draws 32 inches. Last May the *Cherokee* was chartered by the East Coast Canal Company to convey the company's officials and members of the State legislative committee on a tour of inspection of the waterway from Ormond to Miami a distance of 300 miles. The boat makes about 9 miles an hour and the engines consume about 100 gallons of gasoline on the run from Daytona to Miami, which has frequently been made. The boat measures near 12 tons and is fitted with electric lights.

Reception Arrangements at Daytona.

Arrangements have been made for taking care of a large number of automobiles during the tournament, at Ormond, where special structures will be erected for the purpose. At Daytona, a handsome garage has been opened by the Florida Motor Company, which is now building an addition in the rear of its garage and will be able to take care of fifty or more machines. It is well prepared to make repairs and furnish supplies.

Following the removal of the Packard works from Warren, O., the Merchants' and Business Men's Association of that place has been making overtures to the Fredonia Manufacturing Company of Youngstown, O., to induce it to change its location. The Fredonia company is somewhat cramped for land in Youngstown, while Warren has plenty to offer and a number of Warren citizens are willing to invest capital in the Fredonia company if it will move.

An offer of twelve acres of ground and $4,000 cash bonus has been made by the town of Dearborn, Mich., to induce the Ford Motor Company to remove its plant from Detroit to that town. The business of the Ford Company has grown so rapidly as to make its present quarters inadequate, but the main objection to its present location is the inability to secure ground for a testing track, which is amply provided for by the Dearborn offer.

The more a man complains the less other men think of him.

Few men can afford to stand on their dignity all the time. It is necessary to get off and hustle occasionally.

Some men make enemies instead of friends because it is less trouble.

A man is never too old to learn, but sometimes he is too young to realize it.

ROAD RECORDS

GASOLINE

Dis.	Time.	Made By.	Machine.	Place.	Date.
10 m.	10.26	Alex. Winton	Winton	Ormond, Fla.	Mar. 6, 1903
25 m.	1.06.4	Alex. Fisher	Gasmobile	Long Island	Apr. 14, 1900
40 m.	1 33.32	E. B. Shaw	"	Chicago-Joliet	Oct. 18, 1901
70 m.	2.30.01	Alex. Fisher	Gasmobile	Long Island	Apr. 14, 1900
100 m.	2.52.00	Emil Voig	Panhard	"	Apr. 26 1902

700 m. 3 days 20 minutes, Alex. Winton, Winton machine, Cleveland to New York, Nov. 1 to 4, 1900. Actual running time, 38 1-2 hours.

STEAM

Dis	Time.	Made By.	Machine.	Place.	Date.
25 m.	58.13	S. T. Davis, Jr.	Locomobile	Long Island	Apr. 14, 1900
50 m.	2.18.27	"	"	"	"

ELECTRIC

25 m.	1.00.36	A. L. Riker	Riker	Long Island	Apr 14, 1900
50 m	2.03.30	"	"	"	"

WORLD RECORDS

(Fastest times on track or road.)

K. is kilometer (.621 of a mile), the standard distance in Europe.
M. is mile, the standard distance in America.

GASOLINE

Dist.	Time.	Made By	Machine.	Place.	Date
1 K.	0.26 2-5	Duray	Gobron-Brillié	Dourdan, France	Nov. 5, 1903
1 M.	0.46	Augieres	Mors	Dourdan, France	Nov 17 1902

The American record for a mile straightaway is 51 4-5 sec., made by Henri Fournier (Mors), Brooklyn, N. Y., Nov 16, 1901.

STEAM

1 K.	0.27 3-5	LeBlon	Serpollet	Dourdan, France	Nov. 5, 1903
1 M.	*1.01	G.C.Cannon	Cannon	Providence, R. I.	Sept 26 1903

ELECTRIC

1 K.	0.36 1-5	W.C.Baker	Baker	Staten Island	May 31 1902
1 M.	1.03	A.L.Riker	Riker	Brooklyn, N. Y.	Nov. 16 1902

*Made on track.

INSTRUCTIVE CAUSES OF BOSTON AUTO EXPRESS FAILURE.

BOSTON, Jan. 5.—It appears to be a fact that the closing out of the business of the Boston Auto Express Company, now virtually completed in this city, has been due in no way to the failure of the seven big electric express vans to give efficient and economical service. The vans have made a good record for themselves; have managed to "get through" in all kinds of weather—in mud, on ice, or in heavy snow; and the big department stores for which they delivered all sorts of merchandise and packages were so well pleased with the service that, when the receivership for the company was proposed early in December, the stores announced themselves willing to pay an increased charge of three or four cents per parcel rather then have the service interrupted during the Christmas rush.

The troubles of the company were practically all of a business nature not dependent on its use of the motor vehicles. When the company started, it bought out the business and good will of a number of small express companies operating between Boston and the suburban districts, at unwarrantedly high figures; then it met hard competition by the American Pneumatic Service Company, which sends parcels from the central business section to the suburbs through underground tubes, and by the Five Cent Parcel Delivery Company, which restricts its area of operation to the city proper and keeps the price per parcel, anywhere within those limits, down to five cents. The Five Cent company pays a dividend, while the Pneumatic company has been forced by the uncleanliness of tube service and other reasons to deliver practically all its packages by wagons.

This competition made it necessary for the Auto Express Company to reduce its charges and, in order to leave any margin of profit, it was obliged to hire only low-priced labor to carry on its system at the sub-stations, of which it had four. This led to incompetence or laxity in the supervision and direction of the work of sorting and distributing the thousands of parcels brought out from the city by the autos for distribution in horse-drawn wagons and many parcels were lost or disappeared. A majority of those unaccounted for were found to be the C.O.D. packages. This was important, because, in order to give the desired service to the department stores, it was necessary for the express company to guarantee the price of these packages on accepting them for delivery, and when they went astray in considerable numbers the financial leakage developed into an important loss that was too much to stand in view of the narrow margin of profit in the business.

So the enterprise went into the hands of a receiver and the property of the company was put up at public auction Monday afternoon, at its central station on Columbus Avenue, by Receiver Henry S. MacPherson. At first an attempt was made to secure a bid for the entire outfit of ninety horses, fifty-one horse-drawn wagons, sixty harnesses, and seven electric automobiles, but no bidder offered, so all the horses were auctioned in one lot, all the harness in another, and the horse-drawn vehicles in a third. The receiver will petition the court for permission to accept the bids, and then will undertake to dispose of the automobiles at private sale either in New York or Buffalo.

Grand Rapids' Merger of Retail Firms.

The Grand Rapids Automobile Company and the Richmond-Jarvis-Caro Company of Grand Rapids, Mich., have consolidated under the name of the Richmond-Jarvis Company, and incorporated with $50,000 capital stock. Leo. A. Caro retired as treasurer of the Richmond-Jarvis-Caro Company and is succeeded by W. D. Vandecar, who was elected treasurer of the new concern. The other officers are: President, W. B. Jarvis; secretary and manager, A. B. Richmond. The quarters of the Grand Rapids Automobile Company are being remodeled to increase the floor space to 12,000 square feet to be used by the new organization for sales, storage and repair purposes. The company has the agency for the Ford cars for fifty counties in the Lower Michigan peninsula and all of the Upper peninsula, and will also handle the Rambler and Mitchell machines.

AGAINST TIME

On the Road—Straightaway

*Denotes the World Records for the Class.

Gasoline (Over 1,800 Pounds).

Distance.	Time.	Made By	Machine.	Place.	Date.
1 K. (America)	0.32 4-5	Alex. Winton	Winton	Ormond, Fla.	Mar. 26 1903
1 K. (Europe)	*0.26 2-5	M. Duray	Gobron-Brillie	Dourdan, France	Nov. 5 1903
1 M. (America)	0.51 4-5	Henri Fournier	Mors	Brooklyn, N. Y.	Nov. 16, 1901
1 M. (Europe)	*0.46	M. Augieres	Mors	Dourdan, France	Nov. 17, 1902

Gasoline (1,200 to 1,800 Pounds).

1 K. (America)	0.47	Percy Owen	Winton	Staten Island	May 31, 1902
1 K. (Europe)	*0.29 2-5	Barat	Darracq	Dourdan, France	———, 1903
1 M. (America)	1.17 3-5	Percy Owen	Winton	Staten Island	May 31, 1902
1 M. (Europe)	*0.48 3-5	M. Thery	Decauville	Dourdan, France	———, 1902

Gasoline (Under 1,200 Pounds),

1 K. (America)	0.35 1-2	Otto Nestman	Stevens-Duryea	Ormond, Fla.	Dec. 31, 1903
1 K. (Europe)	*0.33	Villeman	Darracq	Dourdan, France	———, 1902
1 M. (America)	0.57 1-5	Otto Nestman	Stevens-Duryea	Ormond, Fla.	Dec. 31, 1903
1 M. (Europe)	*0.58	M. Thellier	Passy-Thellier	Dourdan, France	———, 1902

THE AUTOMOBILE

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SATURDAY, JANUARY 9, 1904.

ARE SHOWS SUPERFLUOUS?

Manufacturers and their customers are alike looking forward to the New York and Chicago automobile shows as great and important events, affording the chief opportunity of the year for keeping tab on progress and fashions and ordering one's own affairs accordingly, whether as a designer and maker or as a possible purchaser. And yet it is fairly well understood now that he who waits for the shows before he forms an opinion, will not be able to form a very reliable one there. Shows serve only to finish plans or opinions well founded in advance. They may clinch an argument and prompt a policy of expansion or of retrenchment, but their effects on those things in the industry which concern the public most—the construction and efficiency of cars—are rarely felt in less than a twelvemonth. Nothing less than two shows, one year apart, suffices to indicate important tendencies in construction to one who does not base his opinions on a study of intrinsic merit.

The Paris exposition was hardly more to the general public than an explanation of the Salon of 1902—an explanation declaring which of the new features tentatively introduced then had been ratified in course of the intervening year.

It has been said—somewhat cynically—that purely technical considerations in regard to construction play the smallest part among the factors which affect or produce trade; that most persons buy the same cars as their friends have bought, and that the main point in establishing the selling qualities of a car is to have it sold to the right class of people first and then to see to it that it is talked about as much as possible.

From this point of view the New York show would become an event mainly of commercial interest—a profit-mongering scheme. But this viewpoint is hardly tenable. Even if many cars are purchased on hearsay evidence of their merits, the nucleus from which irresponsible public opinion is formed is always the reasoned technical opinion of a few individuals who are admittedly in a position to form their own estimate of merit—not necessarily a correct estimate but at all events one arrived at by experience and reasoning.

The persons capable of judging automobiles on this basis are getting to be quite numerous outside of the industry, and they will be at the show; and from them there will by slow degrees percolate to the general public more mature opinions on car construction than would become generally diffused through trade channels. Their views will reach the press, of course, and, before very long, will become the determining force in trade. To this class of persons, however, the shows are indispensable, being the principal opportunities offered for assimilating and comparing the old with the new, the traditional with the hyper-novel. Through them as an intermediate agency the shows become to all of us an educational feature of the highest importance—just as they have always been recognized to be.

A year ago this paper reported that there was a strong tendency toward covered or closed carriages at the Paris automobile show of 1902, and a decided drifting away from the tonneau type, mostly in favor of the side entrance surrey. But the open tonneau was then too new here to be quickly discarded. Now, however, there is evidence of a decided scramble among our manufacturers for offering new body styles in addition to the tonneau "touring car," but the realization of this necessity has come so late that body makers are overwhelmed with orders without being particularly well prepared to execute them quickly or correctly. Two or three automobile manufacturers stuck to their surreys throughout the tonneau craze and have the satisfaction now that their reasoned preference for the side entrance vehicle was two years ahead—as a matter of mere time—of the anxious followers of fashion. Considering that France gained her lead in the automobile industry mainly by the stout reliance of her constructors in their own ideas as to what ought to be considered suitable and fashionable, we are now again reminded of one of the great advantages which fresh independent thought has over ideas merely communicated from others. The latter may have been seriously delayed in transit and may have given room for other ideas before they reached us, while considerations of intrinsic merit never get old. Thus we see our own three-cylinder engine which we only half believed in when we saw it in the Duryea cars, the Wolverine marine motors and the Gasmobile, returned to us with foreign honors, and what we doubted on intrinsic grounds we are in a fair way to accept as a matter of fashion. The French, on the other hand, have not yet, it seems, learned the virtues of roller bearings, but have adopted our liberal use of ball bearings, and we are curious to know whether this shortcoming of the French will give a setback to our better methods of using roller bearings wherever there is need of them and room can be made for them.

BAILEY LAW AMENDMENTS.

From Albany we hear that Mr. Bailey, New York State senator, was the first to introduce a bill at the new session of the legislature: so anxious was he to have amended the law relating to automobile traffic which bears his name, before the opponents of the bill in its entirety would have an opportunity to propose amendments of a more radical nature. And by Mr. Bailey's foresight in this matter the resolution passed by the Automobile Club of Americaa last spring recommending that some action be taken this year to remove the objectionable features from the Bailey law has presumably been made innocuous, especially as Mr. Bailey is reported as announcing that his amendments have the approval of the New York Club or the American Automobile Association, it is not clear which.

The present law provides that in portions of cities not closely built up a speed of fifteen miles an hour may be permitted. The amendment authorizes the local authorities to designate what portions of a city shall be regarded as not closely built up. This change was desired especially by Buffalo. It is required by the present law that automobiles shall not exceed eight miles an hour when passing foot passengers or persons driving horses or other domestic animals on a public highway. An amendment makes this provision apply only when the automobiles are coming from the opposite direction.

"This will permit them to pass at any rate of speed from the rear," comments the Associated Press very erroneously at this point, voicing a very common misunderstanding. In passing from the rear the motorist, this or any other law notwithstanding, is of course restricted by the same decent considerations for the rights

and the safety of others that he should show under any other circumstances.

A third amendment provides that when a chauffeur violates a speed provision of the law he shall be punished by the suspension of his certificate, instead of his right to drive an automobile, as the present law provides

At this particular time of the year the automobile industry will appreciate what *The Outlook* writes of overwork:

"It cannot be said that all men who willingly work overtime reap their reward; but it can be said that no man is reaping the highest rewards or the largest rewards who has not, sometimes for years together, worked overtime. The fear of working overtime is a kind of cowardice which defeats all noble ambitions and condemns a man to mediocrity; eagerness to work overtime when there is work to be done is a sign of a true workman."

Graphite, being an exponent of a lubricant, questions the soundness of this strenuous advice and asks: "Is it wise or in any way desirable to permit such a man to work overtime, except for a brief time in an emergency? And can a man conserve brain and body who, beside putting in full time of hard, earnest work, continues to work overtime, including Sunday and holidays?"

But what, after all, constitutes "work"? Can a man who works overtime of his own choice and from interest in his work—can such a man be stopped from working overtime, or will his native brain activity keep him working on one thing or another at all times?

No reason has yet been made known why anyone should look upon Mr. Eli Potter's organization, the so-called American Motor League, as anything more or better than a personal business scheme conducted under the forms of a public-spirited organization, but it is announced that all motorists will be welcomed to the meetings which the A. M. L. will hold in connection with the New York show and that a definite programme of action will be announced later. We beg to ask: Why not then and there? Why such secrecy about a programme of action that must be known now to Mr. Potter, if he knows on what basis he solicits membership in his guild?

In comparison with the A. A. A., which is also slow to announce a definite platform, there is apparently the difference that the composition of the latter organization offers certain important guarantees, inasmuch as it is backed by the respectability of a large number of clubs whose members cannot be presumed to be willing to consent to any subversion of the proclaimed general aims of the body which unites them. Its form of government is republican, while that of the A. M. L. is apt to remain indefinitely, as did that of the L. A. W., monarchic or dictatorial.

NEW YORK IMPORTERS STIR TRADE AND CLUB CIRCLES.

Two More Licensed by A. L. A. M.—Want Motor Boat Racing Controlled and Automobiles Classified.

ORGANIZING A NEW YORK TRADE CLUB.

The F. A. LaRoche Company, of New York, importer of Darracq automobiles, and Hollander & Tangeman, of New York, importers of the F. I. A. T. Italian cars, were admitted to membership in the importers' branch of the Association of Licensed Automobile Manufacturers at a meeting of that organization held last Monday. This brings the total number of concerns that are privileged to import and sell foreign cars in the United States, upon payment of royalty under the Selden patent, up to nine, a tentative license having been given to the Sidney B. Bowman Company, which has secured the exclusive American agency for the Clement cars. The only important representatives of foreign cars remaining outside of the Association at the present time are A. Lemaitre, who represents the De Dietrich cars; Kenneth A. Skinner, of Boston, who has the sole agency in the United States for De Dion motors and vehicles, and the American branch established by Panhard & Levassor.

The contributory infringement suit which was brought on December 28, against Panhard & Levassor, of France, and Andre Massenat, their American representative, by the Licensed Association, has been supplemented by the filing last Tuesday of papers in an action brought against the same defendants by the Electric Vehicle Company, under direction of the A. L. A. M., for alleged infringement of the Maxim and Pope patents on the back lock or irreversible steering mechanism by the use of similar construction in Panhard cars made abroad and sold here.

The suit was begun in the Southern District of the United States Circuit Court and is based on an alleged infringement of patents No. 699,543 and 702,443 on a steering device issued May 6, 1902, to Hiram Percy Maxim and to Maxim & Pope June 17, 1902, respectively. The plaintiffs in the suit are the Electric Vehicle Company and the Morton Trust Company. All suits for infringement are brought by the Electric Vehicle Company, the original licensee of the Selden patent, acting under instructions from the A. L. A. M. The policy of the association is to license the importers who have secured exclusive American agencies and to protect them in the enjoyment of the sales of such cars against all others.

Importers Discuss Important Matters.

The licensed importers, who are associate members of the association, and other members of the local trade, to the total number of about fifty, met at a hastily called meeting Monday in the Hotel Navarre, and discussed a number of matters in which the importers are much interested. Among these was the proposal to form an importers' association, the organization of a New York trade club, the control of motor boat racing, the classification of automobile records according to horsepower and weight, and representation of the trade in the racing board of the American Automobile Association.

Decisive Move Toward Trade Club.

The proposal to form a trade club has been carried out to the extent of securing the agreement of more than thirty members of the New York trade circle to become charter members, and the securing of permanent quarters in the Hotel Navarre, at the corner of Seventh avenue and 38th street, which are to be open at all times to members and their friends as a social and business rendezvous. It is proposed to have a reading room and café, with attendant and café service, where members of the trade can meet, lunch, discuss matters of mutual interest, or entertain customers or visitors. The movement is an expression of what has long been needed in club facilities in the city and will receive the cordial support of the members of the trade. Another meeting will be called early next week for preliminary organization.

Motor Boat and Automobile Racing.

The subject of motor boat racing control was further discussed at an informal gathering at the Automobile Club of America, during the regular club meeting Tuesday night, Messrs. C. H. Tangeman, E. L. Birdsall, E. B. Gallaher, E. R. Hollander, E. S. Partridge, and C. H. Gillette, secretary of the American Automobile Association, taking part with President W. E. Scarritt, of the A. C. A., presiding. It was suggested that as the control of automobile racing is in the hands of the American Automobile Association, that body should also assume control of motor boat racing. The Power Boat Association, formed last year, has, however, already made a move in this direction. President Scarritt said the A. C. A. would probably organize a motor boat section, as the Long Island Club has just done.

In the matter of classification of cars in racing, a resolution offered at the meeting on Monday proposing that the A. A. A. make a definite classification of machines by weight and power was unanimously supported, the trade members present holding the opinion that the creating of distinct classes and the recognition of records in each class would induce constructors to strive for greater efficiency rather than for vast power irrespective of weight, which would result in more valuable advancement of the industry and the production of a larger number of machines which could be readily converted from racing cars into pleasure vehicles.

NATIONAL AID GROWS STEADILY IN FAVOR.

Two New Senate Bills Provide for Federal Co-Operation with States in Good Road Building.

NO PARTISANSHIP IN THE MOVEMENT.

Sentiment in favor of some general plan of permanent road building by coöperation between the Federal Government and the various States or civil subdivisions of them is developing rapidly in all parts of the country. Following the re-introduction in the House of Representatives of the Brownlow Bill, which is the parent measure of this sort, the Hon. J. H. Gallinger, United States Senator from New Hampshire, has introduced in the Senate a bill almost identical with the Brownlow Bill, and the Hon. A. C. Latimer, Senator from South Carolina, has formulated a bill which he is about to introduce in the Senate, providing in a similar manner for a general scheme of coöperation in road-building between the national and States governments and providing for a commission of three persons to be appointed by the President of the United States, whose duties, it is hoped, will be to see that the prosecution of the work shall keep pace with advancements in road building methods, as suggested editorially by THE AUTOMOBILE recently.

All these bills embrace the principle of National aid, the only points of difference being in the matter of details in legislation especially pertaining to the execution of the work when the money has been appropriated for the purpose.

It is most desirable that the entire question, being an industrial one, should be developed along non-partisan lines as the free rural delivery of mail has been developed. The work done by the United States Government through the Office of Public Road Inquiries has been entirely non-partisan, and the indications so far in reference to the enlargement of this work are that it will be kept non-partisan in the future. Mr. Brownlow, who introduced the first bill, is a Republican from Tennessee, Senator Gallinger is a Republican from New Hampshire, and Senator Latimer is a Democrat from South Carolina; so we have two Republicans and one Democrat working together along the same lines, and it will be noted that two of these are from the South and one from the North, showing that the question is neither sectional nor political.

It is probable that Senator Latimer is to be one of the strongest advocates of National Aid in Congress. He attended the St. Louis convention for good roads, April 27–29, last year, and made a strong speech favoring National aid, and during the last political campaign in South Carolina he stumped the entire State on the good roads proposition and was supported everywhere by the people. He has just concluded a two-weeks' tour of Delaware during which he discussed the road question in every county, and reports that the people are in sympathy with the movement On January 20 and 21 he will address in Little Rock, Arkansas, what is expected to be the largest State convention ever assembled to consider this or any other industrial question in the United States, and will elaborate upon the principles of his bill, and especially that part which pertains to National aid.

L. I. A. C. FORMS LAUNCH SECTION AND SECURES SUMMER RENDEZVOUS.

The Long Island Automobile Club is the first of the American clubs to organize a motor launch section, agitation of the subject by the members for several months having resulted in decisive action last Wednesday, when at a meeting of the officers and board of governors, President F. G. Webb named the following committee to take steps toward a definite plan of action and enrollment: L. R. Adams, chairman; J. Adolph Mollenhauer, commodore of the Pentaquit Corinthian Yacht Club of Bay Shore, and C. H. Tangeman, who is having a high-speed racing launch built in Italy.

From the numerous expressions of approval from launch-owning members, the success of the motor launch section seems assured. H. L. Towle, chairman of the technical committee of the club, is to act in an advisory capacity to the committee.

Through coöperation with the Tavern Club of Brooklyn, which owns a commodious houseboat, it is expected to maintain a permanent summer rendezvous in Hempstead Harbor, as the Tavern Club contemplates anchoring off Glenwood, about a mile south of the Sea Cliff Yacht Clubhouse. A number of the members of the Tavern Club are actively interested in the Automobile club. This probably is the first of a number of affiliations which will be formed.

Chicago Club Would Allay Prejudice.

A number of the leading members of the Chicago Automobile Club, including President John Farson, F. C. Donald and Frank X. Mudd, are of the opinion that it is bad policy for the club members to continue their opposition to the eight-mile-an-hour speed limit. At a recent smoker they advocated not only entire conformity with the law, but the cessation of hostility against it, in order to remove popular prejudice against automobilists. A. C. Banker, who has been fighting in the courts that section of the law requiring licenses, asserted that he was willing to keep within the speed limits but proposed to continue his fight against the licensing and numbering of motor vehicles. The last move in Banker's case was the taking of an appeal to the Appellate Court from the decision of Judge Tuthill sustaining Justice Prindiville in fining Banker $5 on August 1st for operating his car without the required number tag.

Notes of the Clubs.

The Cleveland Automobile Club held the formal opening of its new clubrooms in the Hollenden Hotel on New Years Day. The clubrooms will be open to members and touring visitors every day from 11 a.m. until late in the evening.

The New Jersey Automobile and Motor Club has decided to remain independent of the American Automobile Association as the members feel that the club is broader in scope than the national body and that it has the nucleus of a thriving independent State organization, having received many responses to the 4,000 circular letters recently issued, stating the protective objects of the club, and added eighty members to its roll. The advantages of affiliation with the A. A. A. were urged at a recent meeting of the club by Secretary C. H. Gillette and Harlan W. Whipple.

The annual election of the New York Motorcycle Club will be held January 13. The ticket made up by the nominating committee contains the name of only one of the present officers—that of Captain Miller—and is as follows: President, M. E. Toepel; vice-president, Edward Malloy; secretary, John E. Oest; treasurer, R. H. Nickerson; directors, E. L. Ferguson,; Dr. F. A. Roy, C. W. Nason and Henry Glade; Captain, D. D. Miller; first lieutenant, A. T. Bendix; second lieutenant, H. Jehle.

Proposed Ordinance for Nashville.

A proposed automobile ordinance which was introduced in the city council of Nashville, Tenn., on November 13, has been greatly modified by a special committee of the council, upon representations made by the automobile owners of the city, following a special meeting held by them to discuss the bill. The bill has been redrafted by the secretary to the mayor to conform with the amendments, and a new bill has been recommended to the council for passage. The bill requires the registration of automobiles and the payment of an annual license fee of $3 to operate them, and requires the owners' initials to be placed on the car, at a cost to the owner of fifty cents for each letter. It restricts the speed to ten miles an hour in all parts of the city, instead of seven miles in the outer zone, as formerly proposed; requires automobiles to be provided with horns or bells and to observe the accepted rules of the road and to stop when a policeman signals to do so by raising his club over his head. The amendments struck out the sections requiring operators to stop their cars upon signal from drivers of other vehicles and to

so operate their cars as not to interfere with fire engines. By another amendment motor bicycles were included in the regulations and traction engines excluded. The fines for violation were reduced from $10 to $50, to $3 to $10.

Legislative Notes.

A new ordinance adopted by the Waco, Texas, city fathers restricts the speed of automobiles to eight miles an hour within the fire limits of the city and to fifteen miles outside.

A proposed ordinance prohibiting the running of automobiles in Riverview Park, Allegheny, Pa., was recently recalled by the common council of that city and referred to the committee on public works.

Under a new ordinance in force in Kansas City, Mo., all automobiles and bicycles must be provided with bells or whistles and must not be driven faster than eight miles an hour. Fines ranging from $1 to $100 may be imposed for violation.

The city council of St. Paul, Minn., holds the unique record of having declined to pass an automobile ordinance, notwithstanding it was advocated by the mayor and looked upon with favor by the automobile owners. The special committee to which the proposed ordinance was referred reported that the state laws of Minnesota were sufficient and that the council could not take any action in the case.

After considerable opposition on the part of some of the aldermen, an ordinance was passed sometime ago in Springfield, Ill., requiring the licensing of all automobiles used there, at an annual fee of $5, and providing that a number corresponding with the license number must be attached to the front of the car, limiting the speed to twelve miles within the city limits, and requiring each machine to be equipped with bell or horn to be sounded at street crossings.

An automobile ordinance proposed by Alderman Heintz has been approved by the judiciary committee and recommended to the council of Columbus, Ohio, following its remodeling upon the recommendations of the Columbus Automobile Club represented before the judiciary committee by Major H. M. Neil, president of the club. The ordinance fixes three zones in the city in which speed is limited respectively to six, nine and fifteen miles, provides for registration and numbering, as favored by the club, requires bell, horn or whistle, makes the owner of the machine responsible for accidents, and requires at night a white light in front, a red one in the rear and a white light to illuminate the license number.

Daytona, Fla., adopted at the last semimonthly meeting of the city council, an ordinance limiting the speed within the city limits to ten miles, which must be reduced in the congested parts of the city, prohibiting racing on any street, requiring the cars to be brought to a dead stop when meeting horses that show fright, requiring the carrying of bells or other alarm devices, and between sunset and sunrise, a white light showing in front and a red one behind. No person under eighteen years of age is allowed to drive a car and all owners must file their names and addresses and brief description of their cars with the city clerk. No machines with block or corrugated tires will be permitted to run on the streets.

The aldermanic street committee of the city council of Little Rock, Ark., recently agreed to recommend the passage of an amended ordinance limiting the speed of automobiles to eight miles an hour within the business district and to fifteen miles in the rest of the city, under penalty for violation of a fine of $5 to $25.

Cleveland Trade Notes.

CLEVELAND, Jan. 5.—The regularity with which new retail automobile concerns are developing these days indicates that there will be no lack of competition in this city during the coming season. While two or three concerns have failed or dropped out of business, a dozen have taken their places. The latest is the Whitcomb Automobile Company headed by T. C. Whitcomb, who was formerly with the Ohio Motor Car Company. It is understood that he will locate on Erie Street, immediately adjoining the new establishment of the Ohio Motor Car Company, and that he will make a feature of the Ford and the National cars.

The Russell Motor Vehicle Company, which for some time has had an office at 357 Arcade, and has been carrying on experimental work in gasoline automobiles, is preparing to branch out on an extensive scale and has purchased a plant located at 69 Leyden Street, formerly occupied by the Saeltzer Woolen Mills Company. The automobile company will take possession at once.

Harry S. Moore has erected an addition to his garage on Hough Avenue near Crawford Road, and has installed all the machinery formerly owned by the Star Automobile Company, which Mr. Moore recently bought out. The name of the Star machine will be continued and Mr. Moore has decided on a number of improvements which will be incorporated in the new machine. As is generally known, the Star was a single-cylinder car developing about 8 1-2 horsepower, and Mr. Moore will make a specialty of practically building light cars to order, giving the purchaser about anything he desires in the way of equipment at prices ranging from $900 to $1,000. Mr. Moore will also handle the Elmore, with which he had considerable success last year.

The Cleveland agency for Packard cars has been secured by the Automobile Repair and Garage Company, whose establishment is located at the corner of Erie and Boliver streets. This company will also handle the Autocar.

Charles M. Hall, the well-known Toledo tradesman, was in town recently. He is selling lamps on the road for the Badger Brass Mfg. Co. Mr. Hall has dropped out of the retail automobile business in Toledo, having sold his interest in the Kirk-Hall Automobile Company to Ezra Kirk, of the Kirk Manufacturing Company of that city. Edward Kirk, a brother of Ezra Kirk, will manage the business. The company is planning to establish a branch house on Grand Avenue, Toledo, for the repair and storage of automobiles.

Since the failure of the Cleveland Automobile and Supply Company, which did a fine business with the Cadillac car last year, there has been considerable competition among local agents for obtaining this agency. The connection has been made by Mrs. Post, manager of the Ohio Motor Car Co.

Recent Incorporations.

Detroit Automobile Top Company, Detroit, Mich; capital stock, $5,000. Incorporators, John Andre, Charles Ritter, John Kohler and J. F. Dederich.

The Gate City Motor Car Company of Keokuk, Ia.; $10,000 capital; to manufacture automobiles. Incorporators, J. E. Baker, L. H. Ayer and E. R. Baker.

The Imperial Automobile Company, of Detroit; capital, $25,000. Members of the board of managers: J. B. Book, Homer McGraw, A. B. McCord, G. J. Worthy and R. O. Adams.

Maine Motor Carriage Company, Portland; capital, $10,000. Promoters: Ardon W. Coombs, Charles H. Tolman, Sherman I. Gould, Portland.

The Ferrofix Brazing Company of Philadelphia; capital, $50,000.

Marion Motor Car Company, of Indianapolis; capital, $50,000; to manufacture motor cars. Directors: ex-Mayor C. A. Bookwalter, Frederick A. Ross, Robert H. Hassler, Arthur Hittle and I. G. Besler. It is anticipated that Mr. Bookwalter will be given the presidency.

Auto Life Publishing Company; principal office in Camden, N. J.; to publish, print and manufacture books, magazines, wood cuts, etc.; capital, $10,000. Incorporators: Albert H. Chadbourne, Cornelius Baker, Leonard Atwood.

Power City Electric & Auto Station, Rochester, N. Y.; to deal in electrical supplies; capital, $6,000. Incorporators: E. M. Van Alstyne, A. W. Van Alstyne, G. R. Van Alstyne, all of Rochester.

Smith & Mabley Manufacturing Company, of Fishkill, Dutchess County, N. Y.; to build motor boats; capital, $45,000. Directors: Herman Broesel, C. M. Hamilton, and A. D. P. Smith, of New York.

News Notes and Trade Items.

E. A. Glass has secured the agency for the Ford cars in Houston, Texas.

John G. Dolson, operating a carriage factory in Charlotte, Mich., has begun building automobiles.

The Demotte Motor Car Company, a Philadelphia corporation, has purchased a tract of land near Phoenixville, Pa., on which to erect a plant.

H. B. Day & Co., have secured a two-story stable at 60 W. 43d Street, New York, and will fit it up as an automobile sales, storage and repair shop.

The Waddington cars, built in France, will be imported by the Locke Regulator Company of Salem, Mass., sole representatives for the United States.

Locke Regulator Company, of Salem, Mass., will manufacture a full line of parts for gasoline cars and has just prepared a large catalogue for the trade showing its full line.

The recent straightaway speed records, as low as 46 2-5 seconds for a mile, by Charles Schmidt in the Packard "Gray Wolf," on the Ormond-Daytona beach, were made with Diamond tires.

A mid-winter automobile carnival and street exhibition will be held by the dealers in Minneapolis on lower Nichollet Avenue on January 18 and 19. Prizes are to be awarded for the different classes of cars.

E. B. Gallaher has established agencies for the Richard car in Pittsburg, San Francisco, Los Angeles, Boston and Chicago, and is negotiating for a number of other agencies in prominent cities.

An automobile station will be opened in Waterbury, Conn., by E. H. Towle, athletic outfitter, in a new business block to be erected on the site of the Scoville House on West Main Street, for which contracts have been let.

Albert Schelling, assignee in the general assignment made by the Kensington Automobile Manufacturing Company of Buffalo, has reported that the liabilities are $61,447.53; nominal assets, $63,888.02; actual assets, $32,238.06.

The Wheelock Auto Clock Company, with offices in the Tremont Building, Boston, is making a specialty of clocks for motor cars that are especially made to withstand the shaking and rough usage likely to be received in this use. They are guaranteed and are listed at a moderate price.

An office has been established by the International Automobile Agency af 500 Fifth Avenue, New York, in connection with its garage and repair shop and a specialty will be made of buying and selling second-hand vehicles, and renting cars by the hour, day or trip. It now has four large cars for the latter service and will increase the number next spring.

Stephen Scheidig, of John Scheidig & Co., importers and manufacturers of optical goods at 43 Maiden Lane, New York, has just returned from a business trip to Europe, bringing with him a collection of automobile goggles, all of the latest style.

A new factory building at the foot of 83rd Street and East River, New York, has been bought by Smith & Mabley and equipped with machinery for the manufacture of their Simplex motors, automobiles and motor boats. The plant will soon be in operation.

The Robert Tuck Company, formerly of New York City, is now located in its new factory at Peabody, Mass., which is devoted exclusively to the manufacture of leather automobile coats. New machinery has been installed and the factory is now turning out leather coats in quantities.

The Auto Traction Company of San Jose, Cal., which proposed to inaugurate an automobile grocery delivery service, has brought suit against the Universal Automobile Company to recover $3,750 alleged to have been paid on a contract for four motor wagons which were to have been delivered December 1, but which have not yet been received.

A handsomely designed limousine car that can be converted quickly into a summer car by removing glass sides and end, will be exhibited at the shows by the E. R. Thomas Motor Company, of Buffalo, which is prepared to make any design of body, including side entrance and "Pullman" bodies equipped with revolving chairs, writing desks and other luxurious furnishings and conveniences.

Two little automobiles in gold with diamond headlights were the present which C. H. Cory of Chicago sent to E. R. Thomas of Buffalo for Christmas. To emphasize the compliment, the automobiles bore the exact proportions of 1903 Thomas car, Model 18, and, showing the possibilities in automobile jewelry, they are useful as cuff buttons. Mr. Cory is the Thomas agent in Chicago and for northern Illinois, and will shortly open a new garage in addition to his present place at 5311 Cottage Grove Avenue.

The Palace Automobile Station of Hartford, Conn., has taken a ten-year lease of a plat of ground adjoining its present building and will erect an addition 40 by 170 feet, more than doubling its floor space. When completed, this will give the Palace Station the largest garage in New England. Accommodations will be provided in the new building for the Hartford Automobile Club. On the site of the new structure, which will front on Trumbull Street, now stands the Kelsey home, one of the oldest residences on the street, having stood for 100 years. It is owned by ex-Representative F. C. Rockwell, and is to be torn down.

A list of the names of the 1903 licensed automobile owners in Chicago is to be published by City Electrician Ellicott as a result of the many requests that have been made for the names and addresses. The numbers of the licenses will be withheld.

The Oakes & Morse Company, 40 Sudbury Street, Boston, has been succeeded by the Oakes and Dow Company, incorporated under the laws of Massachusetts, January 1. The present company will continue the manufacture of Comet spark plugs and coils.

H. W. Jones, western manager for the Electric Vehicle Company, of Hartford, Conn., after looking over the field in Minneapolis for some days recently, decided to establish an agency there with A. W. Strong. A complete line of electric vehicles will be carried. The agency is to be located at 249 Third Avenue, south, where Mr. Strong has already opened a garage.

The Packard Motor Car Company of Detroit, Mich., will have their new model sample cars ready for delivery to their representatives early in February. The new factory has been in active operation since the 10th of November, employing about 270 men, and since the 1st of December they have been running continuously fifteen hours a day. The stock production is well in hand and seasonable deliveries of new model four-cylinder motor cars will be made.

A. H. Funke, who is preparing to move to 83 Chambers Street, New York, where he has secured larger quarters, has the sole agency for the sale of the special gas storage tanks for automobile acetylene lamps which are made by the Commercial Acetylene Company and were described in the January 2 issue of THE AUTOMOBILE. He will exhibit these in operation at the Madison Square Garden show. Mr. Funke also has secured the American rights for the French patent covering a means for attaching headlights so that they turn on their sockets automatically in the direction of the steering wheels.

Kenneth A. Skinner, the agent in this country for the De Dion-Bouton automobiles, has just returned to Boston from the Paris show, and is preparing to begin a new year's business on a larger scale than heretofore. In past years Mr. Skinner has handled the De Dion-Bouton cars with good success and now he proposes to add to this line a four-cylinder car of foreign make which will be an active competitor for favor with the American makes of four-cylinder cars. He has taken the agency for the Boyer & Co.'s four-cylinder car and will probably show one of these together with the new De Dions at the New York show. Mr. Skinner was much impressed with the Paris show and the interest taken in automobiles in France. The tendency toward simplicity in the construction of automobiles in France was a feature of the show which appealed to him strongly.